How prepared are medical graduates to begin practice?

A comparison of three diverse UK medical schools

Final Report for the GMC Education Committee

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Background

Previous work has suggested that 42% of doctors commencing work following graduation felt unprepared for their first year of employment. The level of reported preparedness varied between medical schools.

Aim

The present study aims to examine medical graduate preparedness for practice in three diverse medical schools in order to shed light on the extent to which different curricula can prepare students for the workplace.

Methods

This is a multi-method prospective, cross-sectional study.

The primary research sample was drawn from new graduates of three medical schools with differing curricula and cohorts:

- Newcastle medical school - systems-based, integrated curriculum
- Warwick medical school - graduate entry
- Glasgow medical school - problem based learning

Sixty-five medical graduates were interviewed at the end of medical school and fifty-five were re-interviewed four months later at the end of their first placement as an F1 doctor. This sample was stratified on the basis of the academic MTAS (Medical Training Application System) scores generated by each medical school. Five students were sampled from each MTAS quartile, to ensure a range of undergraduate abilities were included. Following selection the sample was reviewed to ensure representation of the demographic range of students, in terms of age, sex, ethnicity and disability. If necessary purposive substitution was made.

Focus groups were held at each site with F1s and F2s to inform the initial interviews.

Qualitative triangulating data was collected from 92 clinicians over the three sites to provide another perspective on preparedness for practice. In total 28 undergraduate tutors, 29 educational supervisors and 17 key managers were interviewed and data was collected from three focus groups with senior clinicians who assess learning portfolios. In addition 18 interviews were held with members of the clinical teams where F1s were working.

A cohort questionnaire to assess perceptions of preparedness was devised and administered to each university cohort during the shadowing period at the end of medical school.

Assessment data from the learning portfolios was reviewed at the end of the first placement to identify those procedures for which new F1s chose to enter assessments.

Newcastle and Warwick F1s took part in a prescribing test during the first placement.

A triangulating questionnaire was devised and posted to members of clinical teams who work with F1s to gain their perceptions of the F1s' preparedness.

Results

These results are based on over two hundred interviews; results from 479 completed cohort questionnaires, 78 triangulating clinical team questionnaires, 420 F1 prescribing assessments and portfolio data from the three sites.

Overall the medical graduates at each of the three medical schools were looking forward to starting F1. Concerns mainly focused on skills that are largely acquired and practised on the job, i.e. prescribing, dealing with acutely ill patients, prioritising and being on call.

The triangulation data from the clinicians supports the perceptions of the new F1s about their readiness to start work, agreeing that more on the job experiences would increase confidence in the areas they were more concerned about.

Preparedness, and the transition to F1, was affected by a number of factors. These included both external factors, including undergraduate clinical placements, shadowing, inductions and the support of others, both in the workplace and at home, and internal factors such as the graduate's personality, learning style and their engagement in seeking out learning opportunities. These factors were reported to either help or hinder the transition.

The qualitative data also highlighted that the novice doctors were themselves not able to predict some aspects of lack of preparedness which only became apparent after working.

Generally the medical graduates at each of the three medical schools reported that they had some knowledge of the F1 role before starting work. After shadowing and four months of working as an F1 they were much clearer about their role and area of responsibility. Working as part of a team was generally positive. Generally the clinicians in the triangulation data tended to agree that new F1s were prepared for some aspects of their role but not all.

Areas reflecting lack of preparedness were generally with regard to gaining experience on the wards and becoming familiar with hospital practices and administrative issues. Areas of specific concern were: being on call, the management of acutely ill patients, prioritising work and managing time effectively. Dealing with all the necessary paperwork was an issue for graduates from Newcastle and Warwick medical schools, but it did not seem to be raised either by the F1s or the clinicians at Glasgow. A lack of a finding here might reflect a difference following the PBL course as some F1s reported that they learned to find things out for themselves.

Knowledge of anatomy was perceived as a potential weakness by some new graduates at all sites, but this was not borne out in their initial experience of F1, nor seen as a weakness by the triangulating sample. While there are acknowledged gaps, these do not generally present problems in F1, although assisting in theatre would require more.

The data from all three medical schools identified that a more advanced level of understanding of legal and ethical issues would be helpful. The NHS was identified as complex but working within it improved understanding at the local level.

Generally there was some concern about being able to perform clinical and practical procedures prior to starting work. At each medical school there were some students who finished medical school having performed very few clinical procedures on real patients. At follow-up most F1s felt they had been better prepared than they had expected. There were concerns from some F1s at each medical school over clinical decisions, dealing with acutely ill patients and patient management. The clinicians'

perspective was that generally the new F1s were capable and if they were lacking they got ‘up to speed’ very quickly. However, there was a general view that they were not arriving with sufficient ward experience.

All sources of data indicate a general lack of preparedness for prescribing. The areas of weakness were general to each medical school and covered the breadth of knowledge and skills related to prescribing. In addition the major source of error was related to prescribing. Due to the potential for such errors to do harm, this constitutes a significant potential risk. F1s at each site spoke particularly highly about the help they received from pharmacists.

The data indicates that communications skills and taking a medical history are both areas that new F1s are prepared for. Complex areas of communication such as dealing with issues following bad news were recognised as more challenging and something they could never be fully prepared for in advance of the real thing. Communication with staff and asking for help were also areas of preparedness. No clear differences in preparedness between medical schools emerged for this theme, except that maturity may have significance in complex communication as the Warwick graduates commented on this.

All medical schools used an undergraduate learning portfolio although this was a different format to the one used at F1 level. At follow-up F1s reported that the assessments were not difficult to perform, but often it had been difficult to get them assessed. The portfolio data indicated that most F1s completed between one and three assessments on clinical procedures in the first four months of practice. The six procedures for which new F1s most frequently entered assessments in their first placement were: venepuncture, cannulation, arterial blood sampling, catheterisation, naso-gastric tube insertion and blood culture (peripheral).

Generally there was a sense that new F1s were prepared to take responsibility for their own continuing professional development which would necessarily be more through clinical practice. Commonly identified areas of need at all three medical schools were: the further development of prescribing skills, acute management and dealing with more complex patients and complex areas of communication.

Throughout the Glasgow transcript data clinicians commented on the Glasgow graduates’ ability to ask questions. There is a suggestion that the PBL course has instilled a greater confidence in these graduates to be responsible for meeting their own learning needs via this assertive approach.

All medical graduates from each of the medical schools agreed that communication skills were particularly well taught. There were common areas that all graduates and clinicians agreed would be areas of improvement. These were: having more experience on the wards – to help prepare graduates for all the F1 tasks, more targeting teaching for prescribing and improvements to shadowing.

There were very few differences between the medical schools and many similarities. Differences seemed to reflect the learning style of the PBL course and the extra maturity of the graduate entry course.

The qualitative data was analysed using a grounded theory approach, and a core category of ‘exposure to clinical practice’ was identified.

The new F1s’ MTAS academic score was not found to be related to preparedness for practice.

Conclusion and recommendations

The findings of this study point to one broad conclusion – that undergraduates' preparedness to begin Foundation Programme will be improved by gaining more experiential learning in clinical practice in their undergraduate programme. To deliver this, consideration should be given to the following methods:

- Provide more structured clinical placements, with experiential learning across a range of specialities to balance the opportunistic learning which currently takes place.
- Give medical students a greater role in medical teams, although balanced with patient safety requirements. Map clinical placements to the dimensions of legitimacy and centrality, to move the student into a more central role before they take on the responsibilities of an F1.
- The development of specific teaching on prescribing, focusing on the development of prescribing as a skilled procedure which is subject to the time pressures and contingencies of all clinical skills. Such teaching should place greater emphasis on prescribing as an instance of applied pharmacology and the need for new doctors to engage with prescribing and develop their own expertise rather than relying on others'.
- Provide more structure in shadowing placements, with greater efforts to ensure F1s shadow their own post.
- Move final exams back in time, possibly to the penultimate year as is already the case in some medical schools. This would free the final year for the development of clinical practice.

Chapter 1. Introduction

Fundamental to the mission of each UK medical school is the preparation of doctors for starting work on the Foundation Programme. A certain amount of diversity of curriculum approaches in medical schools is encouraged in the interests of offering learners choice, adapting to local NHS needs and resources, and a healthy amount of experimental development of medical education. Nonetheless, each and every school has a responsibility to ensure that the outcomes specified in the GMC's *Tomorrow's Doctors* are attained by students on graduation. It remains to be seen whether novice doctors commencing work on the Foundation Programme are equally well prepared for their work, irrespective of the curriculum approaches of their school. Preparedness is not simply a matter of knowledge and competency, but confidence and readiness to change to professional ways of working outside the relatively protected medical school environment.

There is evidence that graduates of different medical schools vary in their preparedness. Goldacre *et al*[1] reported that over 40% of UK medical graduates did not feel prepared for their first post and found large differences between graduates of different medical schools. A more recent survey by the same team showed that preparedness has increased with an average of 59% of graduates reporting preparedness for practice in 2005. However preparedness for practice seemed to vary by medical school, with the proportion of respondents agreeing or strongly agreeing they were prepared for practice ranging from 30% to 89%[2]. The effect of medical school is not only at the first stage of a medical career. The longer-term effects of medical school on career progression was demonstrated by a recent study showing that place of graduation has an effect on performance on the Royal College of Physicians' MRCP(UK) examination[3].

The introduction of a curriculum-based Foundation Programme in 2005, triggered by the Chief Medical Officer's 2002 report *Unfinished Business*[4] meant the issue of preparedness, and the ability of graduates from any UK medical school to start the Foundation Programme on an equal footing, is fundamental.

Some changes in undergraduate curricula have been triggered by central policy. Since 1993, the GMC has specified the requirements for undergraduate curricula in *Tomorrow's Doctors*[5, 6, 7]. These documents aimed to clarify the requirements of basic undergraduate medical education, and set out guidelines that medical schools must follow. The GMC continues to review basic medical education[8], and this report contributes to this.

This research examines the preparedness of medical graduates from three different universities as they make the transition from undergraduate study to professional practice as a doctor in Foundation Year 1 (F1). This chapter summarises the policy and evidential context in which the study was conducted.

1.1 Changes to the UK curricula

The 30 medical schools in the UK must follow *Tomorrow's Doctors* and other GMC guidelines. *Tomorrow's Doctors* was first published in 1993 and moved away from the idea of simply gaining knowledge to a learning process based on evaluation of data and the development of skills to interact with patients and colleagues. Between 1998 and 2001 a series of visits assessed progress in the schools and the GMC recommended that curricula should:

"
- put the principles set out in 'Good Medical Practice' at the centre of undergraduate education;
- make it clear what students will study and be assessed on during undergraduate education;

- make it necessary for all medical schools to set appropriate standards; and
- make necessary rigorous assessments that lead to the award of a primary medical qualification (PMQ)." (Tomorrow's Doctors 2003, p. 4)

However, there is no common core curriculum, and several contrasting approaches to teaching and learning have developed. Alongside traditional science-based curricula, and their systems-based descendents, some new medical schools have adopted a more community-based, behavioural science orientated approach[9], while other medical schools have a predominantly problem-based learning (PBL) curriculum[10]. Many schools will have elements of all approaches however (so-called 'hybrid' curricula).

1.2 Comparing the effects of different medical schools

Changes in medical education should lead to better outcomes, but demonstrating the effect on outcomes is a complex task. In assessing how a curriculum may produce better doctors, it must be identified exactly what constitutes a 'better' doctor[11]. Schuwirth recommends that data collection on competence and performance is key to assessment but is also problematic. For example, the rate of carrying out screening in practice, sometimes used as a proxy measure, may not in itself be an indicator of competence. There is an implication here that health outcomes should also be included.

Several studies[12, 13, 14, 15] have specifically compared graduates who had gone through a traditional curriculum with those who had gone through a new curriculum i.e. PBL. Findings indicated that PBL programmes were more effective at preparing trainees for the first medical jobs, from both trainee and supervisor perspectives. Benefits including ability to deal with complex clinical problems, working within a team, being aware of limitations and so knowing when, and feeling able, to ask a senior for help (behaviour which has been identified as a primary indicator of a trainee's competence)[16, 12] . PBL has been found to improve practice in preventive care and continuity of care but make no difference to diagnosis and management of disease[17].

A wider skill base of clinical practice coupled with communication skills was associated with higher confidence, and so graduates of PBL programmes may be expected to feel more prepared to begin work. Early exposure to clinical problems and communication skills teaching is beneficial, but some new curriculum graduates express concern about their basic science knowledge[18, 19, 20], and prescribing a potentially problematic area[21]. Shadowing during the final undergraduate year was found to be beneficial[22].

However, Pearson *et al*[23] found that the difference in practice outcomes was due to the admissions policy of the non-traditional school rather than the types of medical schools[24]. A more recent study[25] comparing PBL and conventional curricula reported no differences in clinical performance, but women performed better on clinical competence than men. A systematic review[20] does not provide conclusive evidence of an effect of PBL. While there are positive signs then, further research is necessary to establish whether PBL has distinct benefits, and whether it has a detrimental on core knowledge which may affect practice.

Accelerated graduate entry medical education has grown greatly in the UK in recent years, from the first graduate entry programme beginning at St George's, London in 2000 to the current fourteen such programmes. Literature looking at the impact of these programmes is therefore yet to emerge – the current research constituting one of the first such studies. Traditional five year medical degrees have of course always been open to graduate entrants. A study comparing graduate and non-graduate entrants reported few differences[26] found no differences between graduate and non-graduate entrants in whether they felt they had been well prepared by their medical schools for starting as a PRHO (data collected 1999-2002). The differences were more to do with work-life balance i.e. time available for family, social

and recreational activities, working hours, pay, and living conditions which graduates were more critical of.

1.2.1 The hidden curriculum

Any consideration of the impact of curricula must consider the 'hidden curriculum'[27]. It is defined as "the set of influences that function at the level of organisational structure and culture" (p770) and is present in every educational setting. It includes for example implicit rules, customs and rituals of the organisation. Newly qualified doctors may have difficulty in making this adjustment. Lempp & Seale suggest that in medical education the hidden curriculum has an impact through "loss of idealism, adoption of a 'ritualised' professional identity, emotional neutralisation, change of ethical integrity, acceptance of hierarchy and the learning of less formal aspects of 'good doctoring'. Informal role modelling is a key part of this learning.

1.3 The transition from undergraduate to junior doctor

The transition from student to doctor is a challenging and stressful but also a rewarding[28] experience. The transition involves a change in status, in practice and in responsibility, and while practical skills may be developed and evaluated in medical schools, there are substantial differences when the trainee becomes an autonomous doctor[29] (albeit with limitations in the pre-registration year). Lempp *et al*[30] looked at PRHOs' perceptions of a new final year programme at Guy's, King's and St Thomas' in 2001. The results showed that the PRHOs felt that the transition was a big change in terms of responsibilities and anxieties. PRHOs had to develop new coping strategies and learn to prioritise due to the increased amount of administration duties and clinical work. Their relationship with patients was different as they were seen as a 'doctor' and not as a trainee. Skills and/or knowledge which previously had been viewed as irrelevant in student years were now viewed as important and some PRHOs found it difficult to catch up. PRHOs said that they had appreciated the shadowing experience at the end of their final year. Communication skills were now seen as relevant.

1.4 The desirable skills of a junior doctor

A study in the USA[31] indicated that skills which need to be mastered before starting work include: patient interviewing, physical examination, and ability to advise on health promotion and disease prevention. In addition, it was suggested that there is a need to develop self-directed learning and that teaching should aim to develop mastery in a single teaching unit rather than using a stepwise approach. This approach was described as combining several different methods such as case-based discussion; problem-based learning, small group learning and supervised practice with simulated and real patients.

Most medical schools in the UK use a combined methods approach to teaching but the use of real patients in clinical learning may not replicate for learners the clinical decision-making which they are required to undertake when they have responsibility for patient care as an F1. Previous generations of UK medical students were encouraged to work as locum house officers whilst they were senior students and thereby experienced some of the pressures of clinical decision-making.

1.5 Preparedness to practice

Previous work has identified differences in graduates' preparedness for the workplace in different areas of practice. One early study[32], looking at graduates before the reforms of *Tomorrow's Doctors*, found that while a majority felt their education had met their needs for practice and they had developed sufficiently in personal attributes, they did not feel that hey

had acquired enough skills and knowledge, but they did feel they had developed sufficiently in personal attributes. Seventy three percent of trainees felt that their education had met their needs for practice.

1.5.1 Clinical and practical skills

There are still some concerns that the curriculum changes are not enough or that the curriculum has moved away from teaching and learning clinical skills. In a recent report commissioned by the GMC on the implementation of *The New Doctor*[33], educational supervisors and managers mentioned that they considered changes to the undergraduate curriculum as being detrimental and that the curriculum does not prepare trainees well enough. This led to concerns about whether or not the Foundation Programme would be able to 'bridge the gap' between a less than perfect undergraduate curriculum by the end of F2 i.e. for specialist training.

Evans et al[24] aimed to assess newly qualified doctors' confidence and competence (assessed using objective structured clinical examinations [OSCEs] and questionnaires) in a number of clinical and practical skills and the effect an extended 5 day induction period had on these. The questionnaire asked about their perceptions, confidence, anxiety and preparedness for their PRHO year. The results from OSCEs showed that their clinical confidence at the start of induction was perceived as poor for clinical and practical skills although 83% did feel confident in taking blood. After the induction period there was a significant improvement in confidence levels one month into their PRHO post. It was found that confidence levels decreased in areas which were not covered in the OSCE (prescribing and death certification) after the induction period but had increased one month into the post.

1.5.2 Prescribing

Prescribing and therapeutics have traditionally been seen as areas where there needs to be good theoretical knowledge in order to prescribe safely. Findings from the literature suggest prescribing is a problematic area for undergraduates.

A UK study evaluating a new final year programme[21] found that PRHOs perceived themselves to be competent in most of the outcomes identified from *The New Doctor* but were lacking in areas such as prescribing. Keller[34] found that Canadian students' satisfaction with teaching increased when workshops run by pharmacists, with 'hands-on' practice, were used to teach prescribing. On an end of year assessment of 48 students, 100% of the students filled out a prescription correctly, 94% received an excellent, 6% a pass, and no marginal or fail grades were given. The importance of practice-based prescribing is reinforced by findings that competency in prescribing is better tested by OSCE than written examination[35]. However, this does not necessarily mean safer prescribing in the F1 year compared to traditional assessment practice.

Worries about prescribing mistakes for newly qualified doctors may be well founded as adverse drug events are the leading cause of medical injury in hospital, half arising from errors[36]. This study provides useful advice in recommending steps which need to be taken to avoid errors, pointing out that the so-called 'dangerous five' (heparin, warfarin, morphine, insulin and potassium supplements) need particular attention and that when patients are discharged from hospital, letters to GPs need clear guidance about prescribing. An Australian study highlights international concern over readiness to prescribe, reporting that medical students at the end of medical school felt unprepared for prescribing[37].

A possible link between prescribing errors and the lifestyle circumstances and pressures of new doctors is suggested in a study linking medication errors with depression and burn-out in junior doctors[38], although the evidence needs further evaluation.

1.5.3 Assessment

Smee[39] summarised the underlying reasons why a range and variety of skills-based assessments are needed to assess performance and competence, and the fact that good performance in one context does not necessarily indicate good performance in another, similar context. OSCEs were introduced more than 30 years ago as a reliable approach to assessing basic clinical skills but he points out that they do not represent the true patient-doctor encounter as only some specific aspects are tested and some types of conditions are not amenable to such methods. Vivas extend the testing of knowledge but open to subjective bias, and are limited in the number of cases which can be discussed in the time available, limiting their reliability.

In a study of five cohorts of medical students in the UK, strugglers' risk factors for failure compared with controls included: lower school examination grades (strugglers had significantly lower entry grades in biology A-level), non-white ethnicity, and being male[40]. These factors are opposite to those predicting success. A struggler was defined only as someone who failed to make satisfactory academic progress. Strugglers' problems include academic, personal, medical, and social components. However, the authors suggest that factors predicting success may be qualitatively different from those which predict problems.

1.5.4 Professionalism

Overarching both teaching and learning has been an increasing emphasis on professionalism which includes honesty, integrity, compassion, communication and respect[41]. Professionalism is seen as a quality which clinicians should possess but which may be in decline[42]. Personal factors such as personal well-being, individual and interpersonal characteristics, and environmental factors such as institutional culture, and formal and informal teaching all combine to play their part in developing professionalism. There is a need to develop robust methods of teaching and measuring professionalism and evaluating its effects on the workforce. Teaching methods have focused on role models, inter-professional learning and a caring culture. Evaluation methods currently used include peer and supervisor ratings, OSCEs, written responses to vignettes, surveys and portfolios. However, none of these assessment methods satisfy criteria for content validity and reliability. Current thinking is that a single instrument to measure professionalism is not a realistic proposition. Its assessment will require triangulation using different methods, applied in the workplace as much as possible. Since it is a developmental attribute (a 'trait' which must be developed rather than a 'state') some elements should be measured over time[43]. Work limits and supportive relationships are likely to support well-being while self-awareness and reflection may be helpful in promoting a work-life balance for doctors.

1.6 Factors that impact on preparedness

1.6.1 Teaching

When students are simply on-lookers in teaching sessions, especially in clinical settings, the educational value and satisfaction with teaching is reduced[44]. Satisfaction increases with active engagement and is greatest when involvement is greatest. However, factors which enable maximal engagement are not clear but include themes such as enthusiasm of teachers, planning, improvisation, diagnostic explanation, patient care discussion and understanding the students' level of knowledge.

It has been suggested that the student-teacher relationship in medical education is a critical factor in the hidden curriculum[45], with a 'demand' by trainers for a 'right' answer and avoidance of uncertainty identified. This can lead to public humiliation of the student if the 'right' answer is not known, with an underlying assumption that doctors must be perfect. In turn, this may lead to treating students as objects to be 'filled' with facts and the outcome of learning being more important than the process. Students who experienced embarrassment

in response to intimidation went on to trying to hide what they did not know and were afraid to ask questions about things they did not know or understand[46].

1.6.2 Students' previous experience

Previous experience has been identified as likely to broaden, strengthen, cognitively deepen, contextualise and integrate medical education[47]. This study found a distinction in the definition of 'experience' from the point of view of teaching faculty and students. Faculty included prior life experiences in 'experience', but for medical students it was experience during the course which mattered. Students reported feeling a need to build their confidence in relating to patients. Experience of working with patients before the course was a motivating factor, although this motivation needed to be built upon early in the course. Students saw contact with doctors as highly important for developing their professional identity.

Staff thought that experience helped students relate better to patients. Use of visual images of patients enabled understanding rather than rote learning as well as contextualisation of knowledge and stimulation of intellectual skills, especially in relation to behavioural and social sciences.

Early experience in developing communication skills was important to staff and students, as was using modern equipment such as ECG machines on patients rather than peers to put training into context. However, skill development was seen as an opportunity for patient contact rather than simply a chance for improving skill. The opportunities for patient contact throughout training were seen as facilitating the transition from student to qualified doctor. An abrupt transition to clinical practice could produce both positive and negative emotions and a more gradual transition was seen by students as providing a better balance.

A review of the literature on the impact of experience between 1992 and 2001[47] showed that the evidence base was "poorly grounded in theory [and] methodologically weak" but supported their findings that the likely benefits of early experience are awareness of professional roles, better preparedness and early detection of students with difficulties.

1.6.3 Exposure to specialties

Two studies[48, 49] have found that preparedness correlates with exposure to the condition or disease. Cave *et al*[49] found that less than half of a sample of PRHOs (40%) felt prepared to look after patients with cancer although preparedness was differentiated between different aspects of care. For example preparedness was higher for diagnosis and breaking bad news (65%) with other areas much lower: prescribing (21%), knowledge about chemotherapy and radiotherapy (15%) and dealing with oncological emergencies (11%). A significant difference ($p=0.001$) in preparedness was found between those who had had exposure to oncology teaching (44%) compared with those who had not (34%). Edwards *et al*[48] found that of 25 medical schools surveyed in 2005 (96% response rate) where all but one had a transplantation centre in the area, three schools gave no formal lecture and the remainder gave between one and four formal sessions ranging from 15 minutes to 3 hours. The authors attribute this lack of exposure to problems with recruitment of surgeons into transplantation services.

1.7 Bullying and harassment

In a national survey of medical students most respondents reported that they had never been a victim of bullying and harassment whilst at medical school or on placement. Almost a fifth report experiencing bullying or harassment infrequently and 2% report being the victim of bullying or harassment at least monthly[50]. Bullying experiences led to stress and depression.

Paice (2004) found that the prevalence of bullying of trainees in 21 hospital and 7 community/mental health trusts ranged between 40% and 90% of respondents, but the

question related only to behaviours that were persistent, had a negative effect and had occurred in the respondents' current post. Most negative behaviours were perpetrated by other doctors, in order of seniority, although nurses and midwives were an important source of bullying for junior doctor grades.

A study carried out in an NHS community trust found that 1 in 3 staff, notably 37% of junior doctors reporting experience of being bullied in the previous year. Eighty four percent had experienced at least one bullying episode, especially if they were black, Asian or women doctors[51, 52].

1.8 Learning style

The approach which students and trainees take to their own learning, including their habitual learning style, will influence their progress and preparedness.

Learning has been categorised into two different approaches, deep and surface, although these are not attributes of individuals as both may occur at the same time in different contexts[53, 54]. Deep learning is motivated by an intrinsic desire for learning with strategies to learn in an integrated way and personal understanding. It is also associated with the perception of choice, independence and a supportive environment. Surface learning is motivated by fear of failure and associated with rote memorisation and perceptions of a heavy work load, leading to a disorganised approach. Deep learning is often used as surrogate for effective learning. A survey of medical organisations[53], trainers and trainees found that trainees found to have surface learning characteristics valued being given directions to understand what is expected of them and vice versa for deep learners. However, they suggest that although struggling learners may need such support, too much direction can interfere with the development of independence and improvement of self-directed learning skills.

It has been suggested that doctors should have three broad attributes: "cognitive ability (including linguistic and mathematical intelligence, problem solving capacity and memory); humanity (kindness, empathy, emotional intelligence, bedside manner and ability to work in a team); and diligence (care in clinical practice, capacity to work hard, punctuality, honesty and conscientiousness)"[55] (p.786).

Research on personality traits does not lead to any firm conclusions about how they actually influence careers and performance[56]. Individuals who score more highly on introversion and neuroticism find medicine a more difficult career path but they may also practise more safely. Tests measuring empathy are not useful for measuring clinical performance because empathy changes over time and circumstance[57].

There is evidence that at consultant level, there may be intrinsic factors of gender differences which account for higher outputs for men. The research used hospital episode statistics, although caution in interpreting these data was noted due to queries on its validity[58]. In addition, rates of litigation and disciplinary action are lower for women. It is suggested that this finding relates to higher rates of risk taking behaviour in men. Women are more patient centred, have longer consultations, focus more on emotion and counselling and their patients talk more[59].

1.9 Matching education to clinical practice

Some difficulties may arise because of a mismatch between outcomes of undergraduate education and actual requirements in clinical practice[60], while others arise from changes in working patterns[61].

Attempts to improve confidence through extended induction have been found to improve newly qualified doctors' confidence and competence temporarily, but they decline on starting work and only increased much later[24].

There is an indication that it is not the work *per se* which leads to problems with the transition, but the changed context, for example a culture in which patient-centred care could be perceived as 'working too slowly'[28] lack of support and supervision leading to greater amounts of administration[8] or feelings of overwork[62].

Paice *et al*[62] looked at the causes of stress in newly qualified doctors and interventions to help reduce stress during the first year via a postal questionnaire sent to 336 hospitals throughout the UK. This asked PRHOs about a stressful incident they had experienced during their first year and how they had dealt with it. Findings showed that the majority of stressful incidents were caused by factors related to the organisation, for example, doctors being unsure where to go for help and being given too much responsibility in their first few days as a PRHO without adequate supervision. PRHOs also cited overwork as another problem related to stress levels. This stress level was not related to the personal characteristics of the doctors. Legislation such as the European Working Time Directive[63] may have improved working conditions, but may have increased tension between juniors and seniors who perceived juniors as less committed[33].

1.10 Context of the research

1.10.1 Embedding the curriculum changes into clinical practice

The GMC Education Committee carried out a national consultation between July and October 2005 [8]. The consultation focused on the following areas: the desirability of a national licensing examination, the development of a register for medical students and how the undergraduate guidance of *Tomorrow's Doctors* should 'embed principles associated with patient-centeredness, learner-centeredness, inter-professional learning, equality and diversity and the permanence of change'.

The findings of the consultation were broken down under three main headings: assessments, fitness to practise and *Tomorrow's Doctor*. There was no clear consensus as to whether there should be a national assessment. However there was support for developing a more cohesive assessment system in the UK although more evidence is required before this is taken forward. The general feeling was that *Tomorrow's Doctors* should be revised as there was concern that there were areas in the undergraduate curriculum which were not being fully covered, for example, basic science. There was some concern that this would lead to trainees not being fully prepared. Several variables were mentioned as having an impact on trainees' development of professional values. These were listed as the hidden curriculum, the impact of role models and the environment in which the trainees learn.

1.10.2 The effects of Foundation Programme

The experience of new doctors is likely to have changed since the introduction of Foundation Programme in 2005. This fundamental change in the pre-registration year, with a broader basis for the development and consolidation of basic, generic skills, and the systematic gathering of evidence, and demonstration of specific competencies may have changed the workplace for these doctors.

While the intention may be to 'join up' undergraduate and postgraduate training, there are some concerns that changes in undergraduate and postgraduate basic medical education are not providing junior doctors with the necessary skills. A recent report commissioned by the GMC on the implementation of *The New Doctor*[33] reported that educational supervisors and managers considered changes to the undergraduate curriculum to be detrimental, and voiced concerns that the curriculum did not prepare trainees well enough: "We know that a lot

of the important subjects, or those which we think are important have been dropped" (p7, appendix 6). This led to further concerns about whether or not the Foundation Programme would be able to 'bridge the gap', and allow trainees to reach a sufficient level of competence before completing F2.

The streamlining of medical careers introduced by Modernising Medical Careers[64] and developed by the recommendations of the Tooke report[65] means the ability of trainees to smoothly make the transition from undergraduate student to postgraduate doctor is more pressing. Their undergraduate experience must therefore leave them prepared to step into the workplace with as few problems as possible.

References

1 Goldacre M, Lambert I, Evans J, Turner G. PRHOs' views on whether their experience at medical school prepared them well for heir jobs: national questionnaire survey. *BMJ* 2003, 326: 1011-101.

2 Cave J, Goldacre M, Lambert T, Woolf K, Jones A, Newly qualified doctors' views about whether their medical school had trained them well BMC *Medical Education*, 2007 7:50

3 McManus IC, Elder A, Champlain Andre de, Darce J, Mollon J, Lihiana C. Graduates of different UK medical Schools show substantial differences in performance on MRCP (UK) Part 1, Part 2 and PACES examinations. *BMA Medicine* 2008, 6:5

4 Chief Medical Officer. *Unfinished Business*. Department of Health, 2002

5 GMC. *Tomorrow's Doctors. Recommendations on undergraduate medical education*. 1993. GMC

6 GMC. *Tomorrow's Doctors. Recommendations on undergraduate medical education*. 1997. GMC.

7 GMC. *Tomorrow's Doctors. Recommendations on undergraduate medical education*. 2003. GMC.

8 GMC Education Committee. *Final Report – Strategic options for undergraduate medical education. Consultation* June 2006. GMC

9 Howe, A, Campion, P, Searle, J, Smith, H New perspectives—approaches to medical education at four new UK medical schools *BMJ* 2004;329:327-331

10 Wass V. Ensuring Medics are 'Fit for Purpose'. *BMJ* 2005; 331:791-92 www.bmj.com/cgi/content/full) (5.12.06).

11 Schuwirth LW & van der Vleuten CP, Assessment of medical competence in clinical education *Ned Tijdschr Geneesk* 2005 149(49):2752-5.

12 O'Neill P, Jones A, Willis S, McArdle P. Does a new Undergraduate curriculum based on Tomorrow's Doctors prepare house officers better for their first post? A qualitative study of the views of PRHOs' using critical incidents. *Medical Education* 2003; 37: 1100-1108.

13 Watmough S, Taylor, D and Garden. A. Educational supervisors evaluate the preparedness of graduates from a reformed UK curriculum to work as pre-registration house officers (PRHOs): a qualitative study. *Medical Education* 2006; 40(10): 995-1001.

14 Jones A, McArdle, O'Neill P, Perceptions of how well graduates are prepared for the role of PRHO: a comparison of outcomes from a traditional and an integrated PBL curriculum. *Medical Education* 2002, 36 1-6: 16-25.

15 Watmough S, Garden, A and Taylor, D. Pre-registration house officers' views on studying under a reformed medical curriculum in the UK. *Medical Education* 2006; 40(9): 893-899.

16 Stewart, J Asking for senior intervention : conceptual insights into the judgement of risk by junior doctors PhD Thesis, Newcastle University 2006

17 Tamblyn R, Abrahamowicz M, Dauphinee D, Girard N, Bartlett G, Grand 'Maison P, Brailovsky C, Effect of a community oriented problem-based learning curriculum on quality of primary care delivered by graduates: historical cohort comparison study *BMJ*. 2005 331(7523): 1002.

18 Smits PBA, Verbeek JHAM & de Buisonjé CD. Problem-based learning in continuing medical education: a review of controlled evaluation studies. *BMJ.* 2002; 324(7330): 153–156.

19 Clark EC. Problem-based learning: how do the outcomes compare with traditional teaching? *Gen Pract*. 2006 September 1; 56(530): 722–723.

20 Koh, GC-H, Khoo HE, Wong ML, Koh D. The Effects of Problem-based learning during medical school on physician competency: a systematic review. *CMAJ* 2008;178(1):34-41.

21 Lempp H, Seabrook M, Cochrane M, Rees J. The transition from medical student to doctor: perceptions of final year students and PRHOs related to expected learning outcomes. *Clinical Practice*, March 2005, 59(3): 324-329.

22 Jones, A, Willis, SC, McArdle, PJ & O'Neill Learning the house officer role: reflections on the value of shadowing a PRHO. *Medical Teacher* 2006 28(3); 291-293

23 Pearson SA, Rolfe I, Ringland C, Kay-Lambkin F. A comparison of practice outcomes of graduates from traditional and non-traditional medical schools in Australia. *Medical Education* 2002; 36:985-91.

[24] Evans DE, Wood DF & Roberts CM The effect of an extended hospital induction on perceived confidence and assessed clinical skills of newly qualified pre-registration house officers. *Medical Education* 2004 38(9), 998-1001

[25] Cohen-Schotanus J, Muijtjens AMM, Schonrock-Adema J, Geertsma J & van der Vleuten CPM. Effects of conventional and problem-based learning on clinical and general competencies and career development. *Medical Education* 2008: 42: 256-265

[26] Goldacre MJ, Davidson, Lambert TW. The first house officer year: views of graduate and non graduate entrants to medical school. *Medical Education* 2008: 42: 286-293

[27] Lempp H & Seale C. The hidden curriculum in undergraduate medical education: qualitative study of medical students' perceptions of teaching. *British Medical Journal* 2004;329(7469):770-773 (2 October).

[28] Firth-Cozens J. Emotional distress in junior house officers. *BMJ* 1987; 295: 533-6.

[29] Williams C, Cantillon P & Cochrane M The doctor–patient relationship: from undergraduate assumptions to pre-registration reality. *Medical Education*, 201 Volume 35, Number 8, August 2001, pp. 743-747

[30] Lempp H, MacCochrane, Seabrook M, Rees J. Impact of educational preparation on medical student in transition from final year to PRHO year: a qualitative evaluation of a new year 5 curriculum in a London medical school. *Medical Teacher* May 2004; 26 (3):276-8

[31] Benbassat, J. & Baumal, R. A Proposal for Teaching Basic Clinical Skills for Mastery: The Case Against Vertical Integration *Academic Medicine* 2007 82(1); 83-91

[32] Clack GB. Medical graduates evaluate the effectiveness of their education. *Medical Education* 1994, 28: 418-31.

[33] Zwanenberg T, Bagnell G, Hesketh A, Illing J, Burford B, Colthart I, Kergon C, Morrow G & Wakeling J. *Research on the Implementation of The New Doctor: Are we doing the right things?* Final Report for the GMC. Postgraduate Institute for Medicine &Dentistry, Newcastle University & Education for Scotland July 2006.

[34] Keller DR, O'Dell DV, Skochelak SE, Cochran GL, Schull S, Gjerde C Teaching the basics of clinical pharmaceutical care. *Family Medicine*, 2004 36(January suppl):S89-S92.)

[35] Langford NJ, Landry M, Martin U, Kendall MJ, Ferner RE. Testing the practical aspects of therapeutics by objective structured clinical examination. *Journal of Clinical Pharmacy and Therapeutics* Volume 29 Issue 3 Page 263-266, June 2004

[36] Wolf , ZR, Hicks, R & Serembus, J. Characteristics of Medication Errors Made by Students During the Administration Phase: A Descriptive Study *Journal of Professional Nursing* 2006 22(1); 39 - 51

[37] Coombes ID, Mitchell CA & Stowasser DA. Safe Medication practice: attitudes of medical students about to begin their intern year. *Medical Education* 2008; 42: 427-431.

[38] Fahrenkopf, AM, Sectish, TC, Barger, LK, Sharek, PJ, Lewin, D, Chiang, VW, Edwards, S, Wiedermann, BL & Landrigan, CP. Rates of medication errors among depressed and burnt out residents: prospective cohort study *BMJ* 2008. 336: 488-491

[39] Smee, S. ABC of Learning and Teaching in Medicine: Skill Based Assessment. *BMJ*. 2003, 326(7391), 703-706.

[40] Yates, J & James, D. Predicting the "strugglers": a case-control study of students at Nottingham University Medical School *BMJ* 2006, doi:10.1136/bmj.38730.678310.63

[41] Hilton S & Southgate L. Professionalism in medical education. *Teaching and teacher education* 2007; 23: 265-279.

[42] West CP & Shanafelt TD. The influence of personal and environmental factors on professionalism in medical education *BMC Medical Education*. 2007 Aug 30;7:29

[43] Thistlethwaite J, Spencer J. *Professionalism in medicine*. Radcliffe Medical Press, Oxford, *in press*

[44] Hoellein AR; Feddock CA; Wilson JF; Griffith CH, Rudy DW; Caudill TS. Student Involvement on Teaching Rounds. Student Involvement on Teaching Rounds. *Academic Medicine. RIME: Proceedings of the Forty-Sixth Annual Conference* November 4-November 7, 2007. 82(10) Suppl:S19-S21, October 2007.

[45] Haidet P, Stein HF. The role of the student-teacher relationship in the formation of physicians. *Journal of General Internal Medicine*, 2006 21(Supplement 1); S16-S20

[46] Seabrook J. Medical teachers' concerns about the clinical teaching context. *Medical Education*. 2003; 37:213–22

[47] Dornan T and Bundy C. What can experience add to early medical education? Consensus survey. *BMJ.* 2004 October 9; 329(7470): 834

[48] Edwards AG, Newman A, Morgan, D. Exposure to the field of renal transplantation during undergraduate medical education in the UK *BMC Medical Education* 2005, 5:32 (doi:10.1186/1472-6920-5-32)

[49] Cave, J, Woolf, K, Dacre, J, Potts, HWW & Jones, A. Medical student teaching in the UK: how well are newly qualified doctors prepared for their role caring for patients with cancer in hospital? *British Journal of Cancer* 2007 97, 472 – 478

[50] BMA *Medical students welfare report 2006*. www.bma.org.uk/ap.nsf/content/welfare2006 [accessed 30 April 2008]

[51] Quine, L. Workplace bullying in NHS community trust: staff questionnaire survey. *BMJ* 1999; 318: 228-232

[52] Quine, L. Workplace bullying in junior doctors: questionnaire survey. *BMJ* 2002. 324, 878 -879
[53] Delva, MD, Schultz, KW, Kirby, JR & Godwin, M Ambulatory teaching: Do approaches to learning predict the site and preceptor characteristics valued by clerks and residents in the ambulatory setting? *BMC Medical Education* 2005, 5:35-41
[54] Ramsden P. *Learning to teach in higher education*. London: Taylor & Francis. 1992
[55] Brown CA & Lilford R Selecting medical students *BMJ* 2008;336:786 (12 April) Editorials
[56] McManus IC, Keeling A and Paice E. Stress, burnout and doctors' attitudes to work are determined by personality and learning style: A twelve year longitudinal study of UK medical graduates. *BMC Medicine* 2004, 2:29 (doi:10.1186/1741-7015-2-29)
[57] Hemmerdinger J, Stoddart, S & Lilford R. A systematic review of tests of empathy in medicine. BMC *Medical Education* 2007 7(1); 24 (doi: 10.1186/1472-6920-7-24)
[58] Firth-Cozens, J. Effects of gender on performance in medicine. *BMJ* 2008;336:731-732
[59] Roter, DL, Hall, JA & Aoki, Y. Physician gender effects in medical communication a meta-analytic review. *JAMA* 2002. 288: 756-764
[60] Langdale LA, Schaad D, Wipf J, Marshall S, Vontver L, Scot CS. Preparing graduates for their first year of residency: are medical schools meeting the need? *Academic Medicine* 2003; 78: 39-44.
[61] Sonnetag S. Work group factors and individual well-being. In West, MA. Editor, *Education Handbook of work group psychology*. Chichester, UK (1996).
[62] Paice E, Rutter H, Wetherell M, Winder B, McManus I. Stressful incidents, stress and coping strategies in the PRHO year. *Medical Education* 2002, 36 1-6: 56-65.
[63] Department of Health, *The European Working Time Directive*, HMSO 1998
[64] http://www.mmc.nhs.uk [accessed 30 April 2008]
[65] Tooke, J. *Aspiring to Excellence: Final report of the Enquiry into Modernising Medical Careers*. London: Department of Health 2008

Chapter 2. The current study

It has been argued that research into the changes in medical education over the last 20 years has been sparse, lacking in rigour and financial support[1, 2]. Critical topics in education research suggested for inclusion were: criteria for selection; predictors of student success and failure; professional outlook; personal and interpersonal skills. There is also a need to address how training can be better matched with workforce planning[3].

This research establishes the extent to which these areas are important to the preparedness, and perceived preparedness, of medical graduates entering the workplace. It has the strengths of being multi-method and cross-sectional, avoiding the criticisms of narrow methodology and parochialism which have been directed at medical education research[4]. It identifies recommendations for changes to undergraduate medical education which may be incorporated into the 2008 edition of *Tomorrow's Doctors*.

2.1 Aims

The research aims to answer the following research question:

Are medical graduates fully prepared for medical practice?

Subsidiary questions:

- What are the perceptions of preparedness of: final year medical students, F1 doctors, F2 doctors, undergraduate tutors, educational supervisors, managers, clinical supervisors and ward staff?
- In what areas do students feel prepared/unprepared?
- Does preparedness vary with type of medical school and undergraduate curriculum experienced?
- How does perceived preparedness compare to actual performance in work…
    - as demonstrated at Medical School?
    - as reported by trainees following workplace experience?
    - as reported by multi-professional colleagues?
    - as demonstrated in Foundation Programme Learning Portfolio and other assessments?

2.2 Scope of the research

The research looks at the experiences and perceptions of graduates of three medical schools: Newcastle, Warwick and Glasgow. These are broadly distinguished here as being:

- Newcastle medical school -systems-based, integrated curriculum
- Glasgow medical school - wholly problem-based learning, undergraduate entry
- Warwick medical school - graduate entry

Summaries of the approaches of the three medical schools are below, with full details in Appendix A.

2.3 Newcastle Medical School

The Newcastle course is case-led, systems-based and delivered as so-called Units covering basic and behavioural sciences with a clinical 'spin'. Units are: Life Cycle; Medicine in the Community; Cardiovascular, Respiratory and Renal; Nutrition, Metabolism and

Endocrinology; Thoughts, Senses and Movement; Clinical Sciences and Investigative Medicine; and Personal and Professional Development. There is a mix of lectures, group work (in various group sizes), practicals, skills lab sessions, and so-called 'contextualizing' visits with real patient contact (visits to GP surgery, hospital, antenatal and baby clinics, and community agencies). There is a strong emphasis on clinical and communication skills, ethics and evidence-based practice. Year 1 students are attached in pairs to a pregnant mother and follow her up until after the baby is born, to study the impact of pregnancy and new child on family (The Family Study). Year 2 students are allocated a patient with a long-term health problem and follow their progress over several months (The Patient Study) studying the impact of illness on patient and carer. In Year 2 students also undertake their first Student Selected Component (SSC), which runs as a thread through the semester after Christmas, and is based on a topic of interest triggered by the Patient Study. Newcastle is a regional medical school operating on a 'hub and spoke' basis. In Years 3 and 5 students spend the whole academic year in one of four so-called geographical 'Base Units' (BU). Each BU has a lead Trust and links with a number of other Trusts, GP practices and other Primary Care Providers, and sundry community agencies to deliver the course. There is some flexibility over modes of delivery and detail of content although learning outcomes are uniform and all students sit the same examinations.

The educational philosophy is best described as 'guided discovery learning'. Newcastle was a pioneer in the 1970s and 80s of systems-based integrated teaching, along with early patient contact, a distinct primary and community care and public health focus, and other innovative approaches. Interestingly, Newcastle is now considered to have a relatively 'traditional' curriculum.

Newcastle medical school has three routes of entry:

- Undergraduate entry via Newcastle University, based in Newcastle
- Undergraduate entry via Durham University, based in Stockton on Tees
- Graduate entry via Newcastle (this programme is predominantly PBL)

Final programme examination comprised a 3hr written paper, a 15 station OSCE and a structure long case. Just before the start of the new 'house', the Northern Deanery Foundation School hosts a 2 day introduction to shadowing based in the medical school, following which graduates spend a week shadowing the Foundation Year 1 doctor from whom they are to take over.

2.4 Warwick Medical School

The curriculum in Warwick is exclusively for graduate entrants with science backgrounds undertaking a four year fast-track course for MB ChB. It is divided into two phases: the first phase, which is timetabled for students to spend approximately 75% of their time at the medical school, focuses primarily on ensuring that students have an adequate applied understanding of the scientific background to medicine. This Phase lasts for 18 months. In Phase Two they undertake two rotations, each of 6 clinical placements eight weeks long.

Warwick Medical School was part of Leicester-Warwick Medical Schools until just after the 2006 graduation, and the changes to curriculum following the successful GMC Quality Assurance of Basic Medical Education visit in 2006 did not affect the students graduating in 2007. There has been much incremental development of curriculum since then, including replacement of Phase 1 modular assessments with integrated assessments and developing the system of Clinical Education Supervision in Phase II to provide comprehensive coverage.

For most modules the format is a lecture setting out an overview of the territory to be covered, followed by small group learning. This is not PBL, but it is strongly case-based, and facilitated by clinicians. As well as subject specialists recruited by the module leader there

are group learning facilitators who comprise junior doctors as well as senior clinicians. The emphasis in group learning is on learning from each other, to maximise the potential of having students from different scientific backgrounds. Students are expected to apply an equal amount of personal study time to each module, and they are supported by personal tutors in acquiring the essential habits of self-directed learning.

Students are paired up for their clinical placements and usually progress through the entire two and a half years of Phase II with the same clinical partner. For general placements they are attached to 2 consultants of whom one is usually more generalist. A mix of medical and surgical teams is ensured for each student and each will get a similar experience in orthopaedics, anaesthetics and accident and emergency. Beyond that the experience of student partnerships will differ. There is no attempt to ensure that each student works on a placement for each specialism. Instead, the emphasis is on self-directed learning in an apprenticeship setting.

Final professional examination includes two 3-hour written examinations and whole-patient clinical examinations, using the Leicester Assessment Package. All students complete a minimum of four cases over 4 hours with 8 assessors, and students about whom there is any concern in the initial process, or as a result of placement reports, will undertake double that amount of clinical examination.

In advanced clinical practice, the emphasis is on rechecking and certifying the clinical skills needed for practice as well as education on topics such as death certification and controlled drugs prescribing, followed by work-shadowing.

2.5 Glasgow Medical School

The curriculum in Glasgow consists of four main components: Problem-based Learning Core, Vocational Studies, Clinical Core and Student Selected Modules.

In the PBL core, students work in groups of eight through a clinical scenario using a series of steps (The Glasgow Steps) to produce a number of group learning outcomes. A facilitator ensures that students don't stray too far from the expected learning outcomes but a student is elected to act as the chairperson and another as the scribe for the group. The group then go way to research the learning outcomes using a wide range of resources, and feed back their researches to the group two days later, to ensure that they all now understand all aspects of the scenario. The scenarios encourage students to cover "the hierarchy of systems" i.e. each scenario includes dimensions from the molecular through organs and body systems up to populations. The PBL group work is supported by "fixed resource sessions" (e.g. laboratories) and a small number of plenary lectures.

In Vocational Studies, students learn the professional skills, attitudes and behaviours required of doctors including: communication skills; clinical skills and clinical practice; informatics; understanding patients, people and communities; working with others; systems of care; science in medicine; ethics and law; and personal and professional development. They work in groups of eight students with a trained generalist tutor for three hours a week and undertake a number of clinical and community visits e.g. Community Diagnosis project. The topics covered are linked to the PBL core. During this, they are introduced to patients and to the care of patients in the community and in hospital.

Student Selected Modules (SSMs) are five week blocks and students complete seven SSMs during the course that can be selected from a large menu (several hundred topics) or they can propose topics they wish to investigate themselves. Examples include medicine in literature, the pathogenesis of malaria, red blood cell antigens, overweight and obesity, and sports medicine

From the fourth year, students undertake a two year "apprenticeship" rotation through the major clinical specialities in hospitals and general practices throughout the West of Scotland

Region. Hospitals provide teaching and supervision during these attachments. Students also undertake a period of elective study of a minimum of 4 weeks' duration at the end of the third year and again at the end of the fourth year. These may be an extension of a Student Selected Module and generally focus on clinical learning opportunities usually outside Glasgow.

Shadowing in Glasgow takes place *before* graduation.

References

1 Colliver, JA & McGaghie, WC. The Reputation of Medical Education Research: Quasi-Experimentation and Unresolved Threats to Validity. Teaching and Learning in Medicine 20(2); 101-103

2 Todres, M, Stephenson, A & Jones, R. Medical education research remains the poor relation. BMJ 2007;335:333-335 (18 August), *doi:10.1136/bm*j.39253.544688.94

3 O'Dowd, A. Employer representatives oppose Tooke proposals for new body for medical education and training *BMJ.* 2008. 336(7638): 241

4 Albert, M, Hodges, B, Regehr, G. (2007) Research in Medical Education: Balancing Service and Science*. *Advances in Health Sciences Education* 12:1, 103

Chapter 3. Methods

The study used a mixture of qualitative and quantitative methods, to provide a broad and triangulated view of new medical graduates' preparedness. The key stages were:

- Preliminary focus groups
- Initial cohort questionnaire
- Primary sample interviews before and after the start of F1
- Triangulating interviews and focus groups
- Triangulating questionnaire (clinical teams questionnaire)

3.1 Theoretical stance for qualitative methodology

The theoretical approach being used in the qualitative research is grounded theory.

Grounded theory methods are based on the work of Glaser and Strauss[1]. Glaser applied his positivistic methodological training from Columbia University to the development of qualitative data analysis, while Strauss brought symbolic interactionism following Blumer[2] from his training at the University of Chicago. Hence Glaser brought epistemological (theory of knowledge) assumptions and methodological terms and Strauss brought the study of process and meaning.

Charmaz[3] and others[4, 5] place grounded theory in the post-positive perspective (as with positivism, reality is assumed to exist but unlike positivism reality cannot be truly known. Access to reality is imperfect due to the complexity of enquiry and the weakness of the human researcher). Yet Strauss has more of a constructivist stance (as evident in earlier and later work).

Constructivism is the view that knowledge and all social meaning is not discovered but socially constructed. The ontology of constructivism is relativism: this assumes multiple and sometimes conflicting realities that are socially and experientially based. People therefore inhabit different worlds based on different sets of meaning. The epistemological position of constructivism (i.e. how do we know what we know?) is that reality is subjective. The research findings are created from the relationship between the researcher and the object of study. The researcher is both facilitator and participant, who uncovers the constructs of others and reconstructs more informed constructs. The researcher therefore gathers the data and looks for meaning based on relative consensus within the data. This study has therefore taken a constructivist, grounded theory approach by seeking the meaning of both respondents and researchers[3].

3.2 Preliminary focus groups

Preliminary focus groups were conducted in May 2007 with final year medical students and Foundation Programme trainees (years 1 and 2) to identify the key issues in preparedness in order to inform subsequent data collection.

Participants in these groups were recruited in a number of ways: by directly approaching students and trainees who were involved in other medical education research projects, by arranging groups to coincide with Foundation Programme forums attended by trainee representatives, and by contacting the cohort by e-mail. One focus group was conducted with each group at each location. Two one-to-one interviews were conducted with Foundation Programme doctors who expressed an interest in taking part, but were unable to attend a focus group.

Focus groups identified areas which were perceived by students and trainees to be salient during the transition to foundation year 1 (F1), including: the changes in responsibility, working practice and lifestyle associated with becoming a doctor and variations in preparedness in different areas of practice, in terms of both knowledge base and practical skills. Particular areas mentioned were: prescribing, experience of handover, communication skills, anatomy, time management, use of a learning portfolio and team working.

Findings from these focus groups were used to develop a cohort questionnaire and to inform interview schedules.

3.3 Initial cohort questionnaire

The bulk of data collection in the study is qualitative, and therefore deals with relatively small numbers of participants. To establish how prevalent the issues identified were across a wider population, and so ensure some generalisability of findings, a questionnaire was developed to be completed by the whole graduating cohort at each medical school.

The starting point for the questionnaire was the set of issues identified in the preliminary data collection. This was refined and expanded with reference to the GMC's *Tomorrow's Doctors*, an existing questionnaire used at Warwick University and to relevant literature. Preparedness questions referred to specific procedures detailed in the foundation learning portfolio. Draft questionnaires were reviewed by experts and feedback was obtained on content and design from people who had taken part in focus groups.

The questionnaire consisted of 53 questions with 5 point Likert response scales, organised into five sections: clinical and practical skills, communication skills, teaching and learning, understanding the work environment and team-working. Demographic items were also collected, with an item to confirm the place of graduation. Space for additional comments was also provided, to capture any comments on areas which may not have been covered by the scale items (the questionnaire is included in appendix B).

Questionnaires were distributed to new graduates of the three medical schools at pre-shadowing sessions in June and July 2007 when the majority of the cohort were expected to be present. Questionnaires were wholly anonymous to maximise openness. However this did mean that follow-up of non respondents was not possible. The majority of questionnaires were completed and returned to researchers during the sessions, although some were returned by post within three weeks.

3.4 Primary sample interviews

3.4.1 Participants and recruitment

For the bulk of data collection 20 new graduates were targeted at each site. Sixty respondents is a large number for qualitative research, which relies on in-depth exploration of data rather than attempting to generalise across populations. However, with the primary research question being to compare three sites, sufficient participants were recruited to ensure representation across each cohort. To allow for some drop-out between first and follow-up interviews, a few additional graduates were targeted at each site.

The primary sample was selected randomly from the graduating cohorts. In an attempt to ensure a spread of graduate capabilities the sample was stratified to select five graduates from within each quartile of the academic scores obtained through the Medical Training Admissions System (MTAS) which formed the basis of graduates' applications to Foundation Programme in 2007. While not necessarily an accurate indication of students' performance at the time, being partly based on exam performance in the penultimate year, MTAS scores provided the best available indicator of student ability before final exams. A reserve sample was identified at the same time to allow substitution were any students to decline to

participate. Following selection the sample was reviewed to ensure representation of the demographic range of students, in terms of age, sex, ethnicity and disability. If necessary purposive substitution was made.

The primary sample were invited to take part in the study by e-mail and by letter, which included an information sheet, and asked to respond by e-mail or telephone. The majority of the initial sample agreed to take part, with all 24 participants being recruited from the initial and reserve samples. Interviews were arranged around the shadowing periods at each location, although differences in the timing of these periods meant that some students were interviewed after they had started shadowing, whereas others (particularly in Newcastle and Glasgow) were interviewed before shadowing.

With their agreement, the primary sample were contacted again towards the end of their first placement, in November 2007. A follow-up telephone interview was arranged at the respondent's convenience, and carried out in November-December 2007.

3.4.2 Interview schedule

The initial semi-structured interview schedule was developed from the findings of the preliminary data analysis, and discussion within the research team. The interview schedule was flexible, and some targeted questions on particular areas of knowledge and practice (specifically anatomy and handover) were added following initial interviews. Changes to the interview schedule were shared between sites to ensure the questions were the same across sites. The interview covered the following broad themes, although the precise structure and questioning was adaptable to each specific interview depending on responses and to explore responses in accordance with grounded theory[1]. The areas covered in the initial interview were:

- Anticipation of transition
- Areas of preparedness/un-preparedness
- Specific skills

(The initial interview schedule is included in Appendix C).

The follow-up interview was developed by reviewing analysis of the initial interviews. The structure mirrored that of the initial interview, with a focus on how expectations had been borne out.

- Background ('feeling like a doctor', where the F1 is placed, in what specialty)
- Shadowing
- Factors which have helped or hindered the transition
- Clinical and practical skills
- Roles and team working
- Communication skills
- Learning and assessment
- Making mistakes
- Prioritisation
- Knowledge of NHS; legal and ethical issues
- Recommendations for undergraduate course

(The follow-up interview schedule is included in Appendix D).

3.4.3 Procedure

Interviews were timetabled at the students' convenience, and conducted face-to-face, in private rooms, in June and July 2007. Interviews were recorded with participants' consent and transcribed as soon as possible. Interviews were conducted by four researchers in Newcastle (JI, GM, CK, BCB), two in Glasgow (MD, MW) and two in Warwick (BB, CD). Researchers from Newcastle also conducted interviews in Warwick and Glasgow to share workload and provide some triangulation of interviews and help the iterative process of early interviews informing later data collection. The follow-up interviews were arranged by e-mail and conducted by the same researchers. Interviews were recorded with participants' consent, and transcribed as soon as possible.

3.5 Triangulating interviews and focus groups with clinicians

3.5.1 Participants and recruitment

Three groups were identified as having insight into the transition of medical graduates into Foundation Year 1: undergraduate tutors, who oversee students in their final year and so are aware of their level as they approach the end of their undergraduate programme; F1s' educational supervisors, who are responsible for identifying learning goals and development aims with trainees, and so should be aware of their strengths and weaknesses at the beginning of the year; and key managers with programme-level responsibility for groups of trainees. In practice the groups overlap, with some undergraduate tutors and key managers also having supervisory contact with F1s, as educational or clinical supervisors, but for recruitment some distinction was made, with individuals being recruited with a primary focus on one role or another.

Members of these populations were identified by the research team in consultation with key medical school and Foundation School faculty, and individuals were invited to take part in a telephone interview by letter with an enclosed information sheet. The majority of those approached agreed to take part, and the interview was conducted at their convenience, recorded with consent, and transcribed.

In addition, a focus group was held at each site with a panel of portfolio assessors to explore strengths and weaknesses in training and preparedness for practice as demonstrated in learning portfolios submitted by the 2006-2007 cohort of F1s in July 2007.

3.5.2 Interview schedule

The interview schedule for the triangulating interviews was developed concurrently with the primary sample follow-up schedule, and focused on the same broad areas of preparedness, with some targeted probes derived from the initial primary sample interviews. Interview schedules varied slightly with the primary role in which respondents were contacted, but had the same basic structure:

- Role with undergraduates/F1s
- Perceived preparedness of graduates before starting F1
- Problems and strengths in performance during the first four months of F1
- How typical the current cohort of F1s are
- Recommended changes to undergraduate programme

3.5.3 Total number of interviews completed

The total number of interviews carried out in each site is shown in table 3.1 below.

Table 3.1. Total number of interviews completed across all three sites

Site	PS initial interviews	PS follow-up interviews	Key Managers	U/Graduate Tutors	Educational Supervisors	Clinical Team interviews
Newcastle	21	20	6	8	9	10
Warwick	24	21	5	10	10	2
Glasgow	20	14	6	10	10	6

3.6 Triangulating questionnaire

As well as the key managers, educational supervisors and undergraduate tutors, triangulating data was also sought from the clinical teams – doctors, nurses, pharmacists and others - who work with new F1s. Initially structured telephone interviews were planned for this triangulation, and a number were conducted. However difficulties in contacting sufficient participants in the time available meant that a change in approach was taken. A self-completion questionnaire was developed and ethical and research and development approval were received for this amendment (see Appendix E).

Different questions were developed for pharmacists in the interview schedule as they were able to provide a greater insight into more aspects of F1s' prescribing. For this reason a separate questionnaire was also developed for pharmacists (see Appendix F)

3.6.1 Participants and recruitment

To ensure only those who work with F1s graduating from the three medical schools of interest were recruited, the initial approach to recruitment was to ask the primary sample during their follow-up interview to nominate by post five members of clinical teams they had worked with (two doctors, two nurses and one allied health professional), two of whom would be contacted by post to gain informed consent to take part in a telephone interview. There was a slow response to this method, with some F1s preferring not to nominate, and others possibly forgetting. There were also difficulties in arranging a convenient interview time with the nominated clinicians in the time available.

The structured interview was therefore revised to a self-completion questionnaire format, and sent to ward managers on the wards which hosted F1s in their first placement. To increase validity the questionnaire contained a filter item to check whether the F1 was a graduate of the desired medical school.

3.6.2 Questionnaire

The structured interview/questionnaire was developed from the follow-up and triangulation interview schedules, and contained Likert scale and free-text response questions about F1s' preparedness in particular areas of practice: clinical and practical skills (prescribing for pharmacists), error and communication. Demographic items, questions about the level of contact and length of experience the respondent had with F1s (or, previously, PRHOs), and a check whether they knew at which medical school the F1(s) they worked with had qualified.

3.7 Other triangulating sources

As well as primary data collection, secondary data sources were also accessed to indicate the degree of preparedness of the F1 populations. Due to the nature of the data, equivalent data was not available for all sites, but indicative data was collected. Such data included a safe prescribing assessment and portfolio assessment data.

3.7.1 Safe prescribing assessment

In 2006 the Northern Deanery introduced a safe prescribing assessment to provide an in-practice test of new F1s' prescribing skills. The test, based on one developed by King's College London, consists of eight questions presenting different prescribing scenarios, which

are marked by pharmacists following a strict marking schedule. The trainee must answer all questions correctly to pass. If they do not pass at the first attempt, they can repeat the test without penalty until all questions are answered correctly. The test used in the first round in 2007-2008 is included in Appendix G.

Access to the 2007-2008 data for Newcastle University graduates for the first run of the assessment was obtained from the Northern Deanery Foundation School. The assessment was also run for the first time in 2007-2008 with new F1s in the Coventry and Warwick Foundation School, which takes 42% of Warwick University graduates. It was not feasible in the timescale available to introduce the assessment in Glasgow, but data obtained did allow comparison between Newcastle and Warwick.

3.7.2 Learning portfolio data

The portfolio assessments completed by F1s during their first placement may indicate the extent to which they are prepared for particular areas of practice. While there are no strict prescriptions on what they should complete, they are recommended to complete some during every placement. Direct comparison between all sites is not possible because of the different portfolios used in England and Scotland, but some comparison may be made between the frequencies of submission of the assessments involving the observation of particular procedures (work place assessment (WPA), in Scotland, direct observation of procedural skills (DOPS) in England).

In Newcastle, an electronic portfolio (e-portfolio) system is used, and as the research team are part of the Northern Deanery direct access to e-portfolios was obtained through liaison with the Northern Deanery Foundation School. The portfolio allows views of the frequency of completion of different assessments to be obtained. It does not produce summary tables, but by exporting anonymised data to SPSS it was possible for summary data for Newcastle graduates and the primary sample to be obtainable.

In Warwick, a paper-based portfolio was still in use in 2007-2008 (although a move to e-portfolio was in progress). Collation of summary data was therefore based on a review of portfolios conducted in January 2008. Comparable data was obtained by this method.

In Glasgow, while an e-portfolio is used in Scotland, it was not possible to have the same level of access due to the researchers being based in the Medical School rather than deanery. Summary data was therefore only obtained for the primary sample.

3.8 Research Governance and Management

3.8.1 Research Management

Teleconferences were held monthly or as needed with all members of the research team to discuss the overall progress of the project. A final teleconference was held with the three Professors of the medical schools and the chief investigator to make a final interpretation of the results across the three medical schools.

In addition face-to-face meetings and teleconferences were held for researchers to discuss data collection and analysis (JI, GM, CK, BCB, CD, BB, MW, MD).

3.8.2 Ethics and Research and Development

Ethical approval for the study was gained from Cambridgeshire 1 Research Ethics Committee with subsequent approval for a substantial amendment to one aspect of the methodology. Research and Development (R&D) approval was gained from the appropriate Trust R&D offices.

References

[1] Glaser B and Strauss A. *The Discovery of Grounded Theory.* Aldine, New York. 1967
[2] Blumer H *Symbolic Interactionism* Prentice Hall, Englewood Cliffs, NG. 1969
[3] Charmaz K. Grounded theory: objectivist and constructivist methods. In: DK Denzin and YS Lincoln (eds) *Strategies of Qualitative Inquiry,* pp.249-291. Sage, Thousand Oaks, CA, 2003
[4] Guba EG and Lincoln YS Competing paradigms in qualitative research. In: DK Denzin and YS Lincoln (eds) *Handbook of Qualitative Research,* pp.105-117. Sage, London, 1994.
[5] Harris I. In: GR Norman, C van der Vleuten and D Newble (eds) *International Handbook of Research in Medical Education.* Kluwer Academic, London

Chapter 4. Results from cohort questionnaire

The cohort questionnaire was distributed to new graduates during pre-shadowing sessions which the majority of the F1 cohort were expected to attend. Due to the nature of the session in Newcastle, the questionnaire was also distributed to some F1s who did not graduate from Newcastle University. These responses are excluded from this analysis.

Table 4.1 gives the numbers of responses at each location and the proportion of the graduating cohorts they represent (this is not a response rate *per se* as the entire cohort will not have been present when questionnaires were distributed, and some will have left the area to start F1 elsewhere. Approximately 60 to 80% of the graduating cohort attended each shadowing event. In Glasgow only 140 students attended the second day of the introduction to shadowing, which is less than 60% attendance. This could not have been anticipated when planning distribution of the questionnaire. Nevertheless, 131 out of the 140 students did complete a questionnaire).

Table 4.1. Frequencies of responses from the three sites

	Total graduating cohort	Number of questionnaires returned	% of cohort
Glasgow	239	131	55%
Newcastle	304	226	74%
Warwick	154	123	80%
Total	698	480	69%

4.1 Profile of respondents

While there is a potential sampling bias arising from the events at which questionnaires were distributed not being fully attended, table 4.2 indicates that the questionnaire samples do not differ from their cohort populations on the indicator variables available. A more detailed breakdown of the age profile of the questionnaire sample is given in table 4.3. The distribution of age reflects the older profile of the Warwick graduate entrants; although there are very low numbers of people over 30 graduating at any site. The frequencies of male and female respondents reflect national figures, with around two thirds of graduates being female.

Table 4.2. Demographics for cohort populations and cohort questionnaire and primary samples.

	Newcastle			Warwick			Glasgow		
Gender	Pop.*	Primary sample	Q sample	Population*	Primary Sample	Q sample	Pop.	Primary Sample	Q Sample
Male	101 (41%)	10 (48%)	84 (37%)	59 (43%)	11 (46%)	41 (34%)	77 (32%)	4 (20%)	41 (31%)
Female	147 (59%)	11 (52%)	142 (63%)	77 (57%)	13 (54%)	81 (66%)	166 (68%)	16 (80%)	90 (69%)
Age									
20-29	232 (94%)	18 (86%)	206 (93%)	106 (78%)	23 (96%)	108 (92%)	232 (96%)	15 (75%)	130 (99%)
30+	16 (6%)	3 (14%)	10 (7%)	29 (21%)	1 (4%)	9 (8%)	10 (4%)	5 (25%)	1 (1%)
Not known	-	-	-	1 (1%)	-	-	1 (<0.1%)		-
Ethnicity									
White	208 (84%)	19 (90%)	192 (81%)	121 (68%)	21 (88%)	95 (77%)	197 (81%)	15 (75%)	104 (80%)
Non-white	40 (16%)	2 (10%)	31 (17%)	45 (25%)	3 (12%)	24 (19%)	45 (19%)	5 (25%)	25 (19%)
Not known	-	-	3 (1%)	12 (7%)	-	5 (4%)	1 (<0.1%)	-	1 (1%)
Reported Disability	10 (4%)	1 (5%)	1 (<0.1%)	0	0	0	20 (8%)	1 (5%)	4 (3%)

*Figures from database of those registered in 2002, so not identical to finishing cohort

Table 4.3. Distribution of age groups

	20-25	26-30	31-35	36-40	41 and over	Total
Glasgow	107 (82%)	23 (18%)	1 (1%)	0	0	131
Newcastle	179 (79%)	37 (16%)	5 (2%)	3 (1%)	2 (1%)	226
Warwick	34 (29%)	74 (63%)	6 (5%)	2 (2%)	1 (1%)	117
Total	320 (68%)	134 (28%)	12 (3%)	5 (1%)	3 (1%)	474

Very few respondents reported having a disability: four at Glasgow, one at Newcastle, and none at Warwick. One respondent at Newcastle did not wish to disclose the information.

Eighty percent of respondents at all locations described themselves as white.

4.2 Validity of responses

Due to the timescale of the project, it was not possible to fully pilot the questionnaire before distribution to the sample. Some validation analysis was therefore carried out on the dataset.

Across sites, all items show a distinct skew to the upper end of the scale, indicating preparedness, but for all but one item ("Working with colleagues with different lifestyles, backgrounds or religions") the lower half of the scale is used, suggesting the scale has discriminant validity.

High face and content validity, indicating the items' intelligibility and relevance are indicated by high completion rates — no scale items had more than seven missing values.

High construct validity, meaning that items are being interpreted as they were intended, is indicated by an exploratory factor analysis. This identified eleven easily interpretable factors which explained 63% of the variance in the data. These factors can be considered as broadly clinical or non-clinical, in line with established findings in the literature[1, 2]. A two-factor confirmatory factor analysis explaining 40% of the variance reinforced this.

Broadly clinical factors:

- Invasive procedures
- Acute care
- Prioritisation
- Clinical assessment and management
- Examination skills

Broadly non-clinical factors:

- Patient centeredness
- Probity and respect
- Career management
- Contextual awareness
- Paperwork
- Professional communication

4.3 Effect of medical school on perceived preparedness

4.3.1 Effect of medical school on aggregated preparedness factors

To see whether the medical school attended has an effect on graduates' feelings of overall preparedness, regression analyses were conducted using the 'clinical' and 'non-clinical' factors described above as dependent variables, and place of location, sex, age and ethnicity as predictors. These analyses should identify whether there are any systematic variations in the broad indicators of clinical and non-clinical preparedness with the predictor variables.

The regression analysis for the non-clinical factor was not statistically significant, indicating no effect of place of qualification, sex, age or ethnicity on that factor. The analysis for the clinical factor was significant, but the predictor variables explained only 6% of the variance in the factor (adjusted $R^2 = 0.06$, $p < 0.01$). All variables have some significant predictive power, but the actual difference in means is very small, as table 4.4 shows for place of qualification.

Table 4.4. Mean (and standard deviation) of 'clinical' factor aggregate for each place of qualification

Place of qualification	N	Mean (SD)
Glasgow	131	3.29 (0.52)
Newcastle	226	3.48 (0.47)
Warwick	123	3.34 (0.47)

The implication of this is that there is a great deal of variability in perceived preparedness which stems from factors beyond the curriculum followed or simple demographics.

4.3.2 Differences between medical schools on individual items

While place of qualification has little impact on the overall perceived preparedness of graduates, a closer look at any differences on an item-by-item level may be informative.

Initial comparisons by analysis of variance between the responses from each of the locations indicate several significant differences between the sites, summarised in Table 4.5 in descending order of size of difference (full figures are given in Appendix H). The largest differences between sites are in preparedness for paperwork, specifically death certificates and cremation forms. These are followed by several clinical tasks however, including calculating drug dosages and carrying out basic respiratory function tests.

No one site has the monopoly on the highest preparedness ratings. Respondents from each site score highest on some areas, and it may be that particular areas of perceived strength or weakness can be related to particular aspects of each course (for example the higher ratings of preparedness of Glasgow graduates 'Identifying your own learning needs' and 'Managing your own time effectively' may be related to the problem-based learning process).

Table 4.5. Means and standard deviations for items where there is a significant difference between sites. Figures in bold indicate significant differences by post hoc tests following analysis of variance (ANOVA; $p < 0.05$). Where one figure is highlighted, it is significantly different from both others, which are not significantly different from each other. Where two figures are highlighted they are different from each other, but not from the third.

	Glasgow		**Newcastle**		**Warwick**		**Largest difference**
	Mean	**SD**	**Mean**	**SD**	**Mean**	**SD**	
q17 Writing out death certificate, either real or mock	**2.68**	**1.09**	**3.71**	**0.79**	**3.07**	**0.88**	1.03
q18 Writing out Part A of a cremation form	**2.15**	**1.04**	**2.63**	**1.08**	**3.11**	**0.85**	0.96
q16 Calculating drug dosages	**2.25**	**0.96**	**2.98**	**0.96**	**2.57**	**0.89**	0.73
q34 Applying knowledge of alternative and complementary therapies and how these may affect other treatments	**2.59**	**0.96**	**2.93**	**0.97**	**3.29**	**0.80**	0.70
q10 Carrying out basic respiratory function tests	3.30	1.08	3.51	0.86	**2.87**	**0.91**	0.64
q12 Administering a nebuliser correctly	2.99	1.07	**3.57**	**0.86**	2.93	1.00	0.64
q8 Carrying out arterial blood sampling	3.45	1.09	3.56	0.94	**2.96**	**0.96**	0.61
q6 Carrying out simple practical procedures (e.g. taking blood, IV access, administering oxygen)	3.99	0.89	3.95	0.71	**3.51**	**0.86**	0.48
q11 Administering oxygen therapy	3.30	0.97	**3.74**	**0.85**	3.36	0.93	0.45
q36 Managing your own time effectively	**4.08**	**0.72**	**3.67**	**0.70**	**3.88**	**0.60**	0.41
q35 Identifying your own learning needs	**4.29**	**0.64**	3.90	0.61	3.96	0.58	0.39
q37 Prioritising tasks effectively	3.82	0.73	**3.44**	**0.74**	3.82	0.62	0.38
q30 Demonstrating, explaining to or teaching medical students and colleagues	3.34	0.90	**3.72**	**0.75**	3.46	0.85	0.38
q3 Performing a full mental-state examination	**3.32**	**0.80**	3.51	0.75	**3.70**	**0.74**	0.38
q24 Breaking bad news to patients and/or relatives	3.41	0.88	3.43	0.75	**3.07**	**0.81**	0.36
q14c Involving patients in the process of assessing, forming and managing their problems	**3.58**	**0.83**	3.79	0.80	3.93	0.71	0.35
q9 Dealing with emergency care situations (e.g. CPR/ALS)	3.37	0.79	3.40	0.87	**3.06**	**0.79**	0.35
q25 Dealing with difficult and violent patients	2.95	1.03	**3.18**	**0.87**	**2.84**	**0.86**	0.34
q4 Pre-operative assessment of patients	**2.88**	**0.92**	3.00	0.79	**3.20**	**0.76**	0.32
q40 Completing a learning portfolio of evidence to document your progress	3.75	0.92	3.70	0.79	**3.44**	**0.82**	0.31
q41 Identifying appropriate situations in which to seek help from a senior colleague	3.95	0.73	**3.75**	**0.84**	4.06	0.71	0.31
q7 Carrying out complex practical procedures (e.g. bladder catheterisation, operating syringe driver)	2.68	1.01	**2.91**	**0.86**	**2.63**	**0.86**	0.29
q53 Handing over care of a patient (e.g. at the end of a shift)	3.28	1.05	**3.19**	**0.96**	**3.47**	**0.84**	0.28
q5 Interpreting the results of commonly used investigations	**3.88**	**0.65**	3.64	0.67	3.63	0.62	0.26
q51 Demonstrating effective leadership skills	**3.83**	**0.74**	3.61	0.80	3.58	0.81	0.25
q29 Employing a patient centred approach	**4.02**	**0.78**	**4.22**	**0.66**	4.05	0.76	0.21
q48 Working with colleagues with different lifestyles, backgrounds or religions	**4.54**	**0.56**	4.37	0.63	4.34	0.67	0.20
q38 Applying the principles of promoting health and preventing disease	**3.87**	**0.68**	**3.68**	**0.67**	3.80	0.60	0.19
q2 Performing a full physical examination	4.15	0.65	**4.04**	**0.61**	**4.23**	**0.64**	0.19

4.4 Similarities between medical schools: differences in preparedness on different items

While there are differences between medical schools in their graduates' reported preparedness, there are also substantial variations between items common to all medical schools.

Tables 4.6 and 4.7 illustrate this by presenting the items which have greatest and least overall preparedness in terms of the aggregated score across all sites (Appendix I gives all

items) alongside the 'top 10' and 'bottom 10' items for each site individually. There is a great deal of agreement between these and the overall rankings, with eight of the 'top 10' the same in all columns, although the precise ranking differs. (The items which differ are 'Employing a patient-centred approach' which is replaced by 'identifying your own learning needs' in Glasgow's ranking and 'Managing your health in order to protect patients and colleagues' which is replaced by 'Identifying appropriate situations in which to seek help from a senior colleague' in Warwick's).

Table 4.6. The ten items with the highest preparedness score, overall and for each location. Items in each column are shaded.

Overall	Mean	Glasgow	Newcastle	Warwick
q49 Respecting the roles and expertise of other health and social care professionals	4.41	q49 Respecting the roles and expertise of other health and social care professionals	q48 Working with colleagues with different lifestyles, backgrounds or religions	q49 Respecting the roles and expertise of other health and social care professionals
q48 Working with colleagues with different lifestyles, backgrounds or religions	4.41	q48 Working with colleagues with different lifestyles, backgrounds or religions	q49 Respecting the roles and expertise of other health and social care professionals	q1 History taking
q43 Being honest with patients, colleagues and supervisors	4.34	q47 Working as part of a team with other healthcare professions	q43 Being honest with patients, colleagues and supervisors	q48 Working with colleagues with different lifestyles, backgrounds or religions
q47 Working as part of a team with other healthcare professions	4.32	q43 Being honest with patients, colleagues and supervisors	q47 Working as part of a team with other healthcare professions	q47 Working as part of a team with other healthcare professions
q1 History taking	4.30	q1 History taking	q1 History taking	q43 Being honest with patients, colleagues and supervisors
q21 Communicating clearly, sensitively and effectively with patients and their relatives	4.13	q35 Identifying your own learning needs	q29 Employing a patient centred approach	q2 Performing a full physical examination
q2 Performing a full physical examination	4.12	q2 Performing a full physical examination	q44 Managing your health in order to protect	q22 Communicating effectively with colleagues from a variety of health and social care professions
q29 Employing a patient centred approach	4.12	q44 Managing your health in order to protect	q21 Communicating clearly, sensitively and effectively with patients and their relatives	q21 Communicating clearly, sensitively and effectively with patients and their relatives
q44 Managing your health in order to protect patients and colleagues	4.09	q22 Communicating effectively with colleagues from a variety of health and social care professions	q2 Performing a full physical examination	q41 Identifying appropriate situations in which to seek help from a senior colleague
q22 Communicating effectively with colleagues from a variety of health and social care professions	4.07	q21 Communicating clearly, sensitively and effectively with patients and their relatives	q22 Communicating effectively with colleagues from a variety of health and social care professions	q29 Employing a patient centred approach

The 'bottom 10' show more variation, but five of them are the same, including 'Writing safe prescriptions for different types of drugs', 'Calculating drug dosages' and 'Carrying out complex practical procedures'. Differences emerge in Warwick and Glasgow being more prepared for paperwork. The difference in mean score between the highest and lowest is 1.79, higher than the largest difference between medical schools in the previous section.

Table 4.7. The ten items with the lowest preparedness score, overall and for each location. Items in each column are shaded.

Overall	Mean	Glasgow	Newcastle	Warwick
q12 Administering a nebuliser correctly	3.24	q12 Administering a nebuliser correctly	q28 Using knowledge of legal and ethical issues in practice	q24 Breaking bad news to patients and/or relatives
q28 Using knowledge of legal and ethical issues in practice	3.19	q25 Dealing with difficult and violent patients	q53 Handing over care of a patient (e.g. at the end of a shift)	q9 Dealing with emergency care situations (e.g. CPR/Advanced life support)
q25 Dealing with difficult and violent patients	3.03	q15 Writing safe prescriptions for different types of drugs	q25 Dealing with difficult and violent patients	q15 Writing safe prescriptions for different types of drugs
q4 Pre-operative assessment of patients	3.02	q4 Pre-operative assessment of patients	q4 Pre-operative assessment of patients	q31 Using knowledge of the structures and functions of the NHS in practice
q15 Writing safe prescriptions for different types of drugs	2.96	q31 Using knowledge of the structures and functions of the NHS in practice	q16 Calculating drug dosages	q8 Carrying out arterial blood sampling
q34 Applying knowledge of alternative and complementary therapies and how these may affect other treatments	2.93	q17 Writing out death certificate, either real or mock	q15 Writing safe prescriptions for different types of drugs	q12 Administering a nebuliser correctly
q31 Using knowledge of the structures and functions of the NHS in practice	2.88	q7 Carrying out complex practical procedures (e.g. bladder catheterisation, operating syringe driver)	q34 Applying knowledge of alternative and complementary therapies and how these may affect other treatments	q10 Carrying out basic respiratory function tests
q7 Carrying out complex practical procedures (e.g. bladder catheterisation, operating syringe driver)	2.77	q34 Applying knowledge of alternative and complementary therapies and how these may affect other treatments	q7 Carrying out complex practical procedures (e.g. bladder catheterisation, operating syringe driver)	q25 Dealing with difficult and violent patients
q16 Calculating drug dosages	2.68	q16 Calculating drug dosages	q31 Using knowledge of the structures and functions of the NHS in practice	q7 Carrying out complex practical procedures (e.g. bladder catheterisation, operating syringe driver)
q18 Writing out Part A of a cremation form	2.62	q18 Writing out Part A of a cremation form	q18 Writing out Part A of a cremation form	q16 Calculating drug dosages

4.5 Free text comments

The questionnaire also allowed respondents to give free text comments on their preparedness. One hundred respondents gave such comments, many referring to knowledge gaps, particularly with reference to prescribing. There were also comments on anatomy from Warwick and Glasgow graduates.

> *"We need more teaching in anatomy, pharmacology and microbiology. I feel lectures would be a good way to cover these topics".* (Glasgow cohort questionnaire respondent)
>
> *"The pharmacology course and exam were shocking"* (Warwick cohort questionnaire respondent)
>
> *"I am not at all confident about prescribing"* (Newcastle cohort questionnaire respondent)

Practical skills were also mentioned, including the paperwork side of hospital practice highlighted as a weakness in Glasgow and Newcastle. Several quotes highlighted the lack of on-ward practice and teaching.

> *"...more teaching on prescribing some practical skills that will be required in FY1 e.g. death certificates"* (Glasgow cohort questionnaire respondent)
>
> *"We had a fair amount of theoretical teaching on items such as prescribing, death certificates etc but no structured teaching & feedback with practising ourselves"* (Newcastle cohort questionnaire respondent)
>
> *"Not enough bedside teaching, need to become an integral part of team attached to real responsibility"* (Warwick cohort questionnaire respondent)

There were negative comments about all the courses, with some Glasgow respondents making particular reference to having mixed feelings about the PBL course, with its benefits being counterbalanced by a lack of scientific grounding, and a lack of structure at times:

> *"Too much sociology otherwise fine but would have liked more variety of attachments in clinical phase (could be done by shortening blocks from 8 to 4 weeks)"* (Warwick cohort questionnaire respondent)
>
> *"A series of loops to be jumped though & boxes to be ticked the course has prepared me for a career in a health service built on bureaucracy and middle management"* (Warwick cohort questionnaire respondent)
>
> *"Newcastle is a medical school for GPs we don't get enough time on clinical [procedures] yet we're all great at micro skills"* (Newcastle cohort questionnaire respondent)
>
> *"No specific individual feedback no specific tutor for final 3 yrs no full clinical skills training had to be learnt at random on wards"* (Newcastle cohort questionnaire respondent)
>
> *"I feel Glasgow university has become too PBL based without enough guidelines and core teaching ... it may help to create clear objectives ...subjects that we need to know back to front & those subjects we only need to know at a more superficial level"* (Glasgow cohort questionnaire respondent)
>
> *"I think that the PBL system in Glasgow has some good aspects but it needs to be more focused & organised perhaps by grouping scenarios into system of the body"* (Glasgow cohort questionnaire respondent)
>
> *"At Glasgow the onus on learning is entirely on the student at times many of us felt left on a limb with no real syllabus ...having said that it was an enjoyable course and I feel PBL works very well in first & second years"* (Glasgow cohort questionnaire respondent)

However, there were also comments praising each of the courses:

> *"I feel that the PBL course has given me a lot of skills in regards to managing my own learning and I am very appreciative of that"* (Glasgow cohort questionnaire respondent)
>
> *"In general I have been impressed with my training a lot of the things I feel unprepared about I think are things that probably need to be learnt on the job"* (Newcastle cohort questionnaire respondent)
>
> *"Good all-round training with benefit of early clinical exposure good feedback mechanism practical skills taught"* (Warwick cohort questionnaire respondent)

The free text comments overall reinforce the heterogeneity of the medical graduates indicated by the numerical data. Overall there is a sense of preparedness, with an awareness that the job will be very different from being a student: "Training is good but doesn't necessary mean I feel confident at all" (Newcastle respondent). Specific problems with courses are identified by some, but these are not universally reported.

4.6 Conclusion from cohort questionnaire

There are differences between the reported preparedness of graduates of the different medical schools, but there are also substantial differences within medical schools, meaning that overall medical school cannot be taken to be a predictor of a graduate's overall preparedness.

Specific differences on some items, such as paperwork, independent learning and some clinical tasks, may be attributed to curriculum type and/or experience gained as undergraduates, but these differences are small. Free text comments reflect this variation in preparedness at a personal level, with some graduates being very happy with their course, others being less satisfied with aspects of teaching and the practice gained.

The more important finding from the questionnaire data is that graduates feel distinctly unprepared for routine elements of the F1 role such as prescribing, and some procedures, regardless of the medical school they have attended.

References

[1] Verhulst, SJ, Colliver JA, Paiva, RE & Williams, RG (1986) A factor analysis study of performance of first-year residents *Journal of Medical Education* 61; 132-134

[2] Archer, J, Norcini, J, Southgate, L, Heard, S & Davies, H (2006) mini-PAT (Peer Assessment Tool): A valid component of a national assessment programme in the UK? *Advances in Health Sciences Education* DOI 10.1007/s10459-006-9033-3

Chapter 5. Results from triangulation questionnaire

This chapter contains data collected from the clinical teams that the new F1s work with, including medical and nursing staff, and pharmacists. These individuals work most closely with F1s and see their day-to-day practice, and so should be aware of any issues which present at the earliest stages of F1, even if they are quickly resolved in practice.

Data is presented from two sources – structured interviews and questionnaires. The content was broadly the same, and the data collected is comparable, but due to the methodological differences, the data is not aggregated. Details of the change are in the methods chapter, but to reiterate: it was decided following some initial interviews to use a postal self-completion questionnaire to gain the views of new F1s' colleagues. As well as difficulties with recruiting interview respondents in the time available, these interviews had also highlighted the differences in data to be obtained from pharmacists compared to doctors and nurses. Two questionnaires were developed, with a version for pharmacists covering a more detailed range of prescribing behaviour than the general clinicians' version.

5.1 Response rates

Ten interviews were carried out at Newcastle (seven with doctors, one with a nurse, two with pharmacists), two at Warwick (both nurses), and six at Glasgow (2 with doctors, 3 with nurses, 1 with a pharmacist). A total of 80 questionnaires was returned from all sites.

Table 5.1 contains responses to the filter question to ensure that responses were focused on F1s who qualified in each of the medical schools being studied. This recognised that staff may not always be aware of the place of qualification of new doctors, and that they will work with a number of F1s who may qualify in different places, giving response options 'Yes', 'No, 'At least one of them did', 'Don't know'. Responses from those who answered 'No' to this question (one sister in Newcastle, one consultant in Warwick) are excluded from the figures that follow.

Table 5.1. Responses to 'Did the F1(s) graduate from Newcastle/Warwick/Glasgow Medical School?'

	Yes	No	At least one had	Don't know
Newcastle	14	1	6	5
Warwick	7	1	4	9
Glasgow	17	0	13	3

Table 5.2 summarises the frequencies of returned questionnaires by job title. Medical and nursing professions, and pharmacists, are represented for all locations. One pharmacist completed the general clinicians' questionnaire, and their data will be treated with the rest of that sample.

Table 5.2. Numbers of responses from different professional groups.

	F2	Staff nurse	SpR/ST	Sister	Consultant	Nurse consultant	Pharmacist*	Other**	Total
Newcastle		8	3	5	3	0	4	2	25
Warwick		5	2	3	1	1	5	3	20
Glasgow	1	6	4	3	10	1	8	0	33

* These pharmacists completed the separate questionnaire

** Including one nurse practitioner, one pharmacist, and three nurse specialists

The modal age group for respondents was 40-49, with 31 respondents (39%), but all age groups were well represented: 20-29 (12 respondents), 30-39 (22 respondents) and 50 and above (13 respondents). 50 respondents (64%) were female. These proportions are comparable for all sites. Respondents had a range of experience working with F1s (or prior equivalents) – summarised in Table 5.3.

Table 5.3. Experience respondents have working with F1s (years)

Medical School	N	Minimum	Maximum	Mean	Std. Deviation
Newcastle	24	1	40	9.88	10.784
Warwick	18	1	20	10.78	8.143
Glasgow	33	1	38	16.15	10.938

Medical and nursing staff reported working with between 1 and 20 F1s in a given placement, although six respondents from Glasgow were the only ones to report working with more than eight F1s. Pharmacists in Newcastle and Glasgow work with more F1s (between 4 and 21), than those in Warwick (between 1 and 5). Most questionnaire respondents (86%) had daily contact with F1s, with none having contact less frequently than monthly. All but one of the interview respondents worked with F1s daily, the other fortnightly.

5.2 Clinical skills

The questionnaire asked respondents to indicate F1s' preparedness to perform particular tasks. Different items were included in the general clinician and pharmacist questionnaires. Table 5.4 summarises responses to the general clinical team questionnaire, with overall good preparation, the exceptions being NG tube and clinical decision making. Differences between sites were hard to interpret on this small sample, but IV drugs and catheterisation showed marked variation.

Table 5.4. Perceptions of F1 preparedness of doctors and nurses. Responses from interview respondents are given in brackets.

		Prepared	Unprepared	Don't know/ missing	% Prepared	% Unprepared	% Don't know/ missing
History taking	Newcastle	19 (8)	1	1 (2)	90	5	5
	Warwick	14 (2)		1	93	0	7
	Glasgow	24 (5)	1	(1)	96	4	0
Examination	Newcastle	17 (8)	2	2 (2)	81	10	10
	Warwick	14 (2)		1	93	0	7
	Glasgow	22 (4)	3 (1)	(1)	88	12	0
Cannulation	Newcastle	16 (6)	4 (2)	1 (2)	76	19	5
	Warwick	10 (1)	3 (1)	2	67	20	13
	Glasgow	17 (3)	6 (1)	2 (2)	68	24	8
Catheterisation	Newcastle	9 (3)	6	6 (7)	43	29	29
	Warwick	6	2	7 (2)	40	13	47
	Glasgow	11 (1)	9 (2)	5 (3)	44	36	20
Venepuncture	Newcastle	18 (8)	1 (2)	2	86	5	10
	Warwick	11 (1)	1 (1)	3	73	7	20
	Glasgow	22 (3)	3 (1)	(2)	88	12	0
NG Tube	Newcastle	5 (4)	10	6 (6)	24	48	29
	Warwick	2	4	9 (2)	13	27	60
	Glasgow	1	17 (2)	7 (4)	4	68	28
Arterial Blood Gases*	Newcastle	15	5	1	71	24	5
	Warwick	5	1	9	33	7	60
	Glasgow	14	7	4	56	28	16
IV drugs	Newcastle	4 (1)	6 (2)	11 (7)	19	29	52
	Warwick	7 (1)	1	7 (1)	47	7	47
	Glasgow	7 (2)	12 (2)	6 (2)	28	48	24
IV drip	Newcastle	3 (3)	8 (3)	10 (4)	14	38	48
	Warwick	1 (1)	2	12 (1)	7	13	80
	Glasgow	9 (3)	10 (1)	6 (2)	36	40	24
Prescribing	Newcastle	14 (7)	6 (1)	1 (2)	67	29	5
	Warwick	11 (2)	4		73	27	0
	Glasgow	18 (3)	6 (1)	1 (2)	72	24	4
Prioritising workload	Newcastle	14 (5)	4 (3)	3 (2)	67	19	14
	Warwick	10 (1)	5	(1)	67	33	0
	Glasgow	5 (2)	16 (2)	4 (2)	20	64	16
Hospital procedures	Newcastle	13 (6)	5 (2)	3 (2)	62	24	14
	Warwick	11 (1)	4	(1)	73	27	0
	Glasgow	12 (2)	11 (2)	2 (2)	48	44	8
Acute management	Newcastle	12 (5)	6 (3)	3 (2)	57	29	14
	Warwick	9 (1)	2	4 (1)	60	13	27
	Glasgow	4 (2)	16 (2)	5 (2)	16	64	20
Working with a multi-disciplinary team	Newcastle	19 (8)	1	1 (2)	90	5	5
	Warwick	13 (2)	2		87	13	0
	Glasgow	20 (5)	4	1 (1)	80	16	4
Handover	Newcastle	14 (6)	3 (1)	4 (3)	67	14	19
	Warwick	13	1	1 (2)	87	7	7
	Glasgow	13 (4)	8	4 (2)	52	32	16
Making clinical Decisions	Newcastle	10 (4)	9 (3)	2 (3)	48	43	10
	Warwick	7 (1)	6	2 (1)	47	40	13
	Glasgow	8 (3)	12 (1)	5 (2)	32	48	20
Anatomy	Newcastle	16 (5)	2 (2)	3 (3)	76	10	14
	Warwick	10 (2)	2	3	67	13	20
	Glasgow	8 (2)	9 (2)	8 (1)	32	36	32

*Not asked in interview

It is possible that some of the variation between sites is due to differences in the proportions of different professional groups at the different sites, and biases in their responses. Table 5.5 indicates the proportion of all 'unprepared' responses for professional groups at different site, with the proportion of those groups in the sample. Consultants particularly are over-represented in the unprepared responses.

Table 5.5. Proportion of responses indicating F1s are unprepared in any area, by professional group. Compare with table 5.2 to possibly explain differences between sites

Group	% of sample	% of 'unprepared' responses
Consultant	23	34
F2	2	4
Nurse consultant	3	5
Sister	18	24
SpR/ST	15	15
Staff nurse	31	17
Other	8	1
Total	100	100

While the interviews did ask specific questions of pharmacists, these were expanded in the questionnaire (table 5.6). The numbers of pharmacists were very small, which means interpretation can only be tentative, but the implication is that there is high unpreparedness for prescribing.

Table 5.6. Perceptions of preparedness of pharmacists. (Interview responses are in brackets).

		Prepared	Unprepared	Don't know/ missing	% Prepared	% Unprepared	% Don't know/ missing
Drug history	Newcastle		4		0	100	0
	Warwick	1	4		20	80	0
	Glasgow	3	4	1	38	50	13
Choosing appropriate drugs	Newcastle	1 (1)	3 (1)		25	75	0
	Warwick	2	2	1	40	40	20
	Glasgow	4 (1)	4		50	50	0
Correct dosages	Newcastle	2 (1)	2 (1)		50	50	0
	Warwick	3	2		60	40	0
	Glasgow	3 (1)	5		38	63	0
Writing prescriptions	Newcastle		3	1	0	75	25
	Warwick	1	3	1	20	60	20
	Glasgow	3	5		38	63	0
Completing drug charts	Newcastle	(1)	4 (1)	(8)	0	100	0
	Warwick	2	3		40	60	0
	Glasgow	4 (1)	4		50	50	0
Drug interactions	Newcastle	3 (1)	1 (1)		75	25	0
	Warwick	1	4		20	80	0
	Glasgow	1 (1)	6	1	13	75	13
Applying pharm. knowledge	Newcastle	1	2 (2)	1	25	50	25
	Warwick	1	3	1	20	60	20
	Glasgow	5 (1)	3		63	38	0
Use of BNF	Newcastle	4			100	0	0
	Warwick	1	4		20	80	0
	Glasgow	8			100	0	0
Safe use of fluids	Newcastle	1		3	25	0	75
	Warwick	2	1	2	40	20	40
	Glasgow	3		5	38	0	63
Adverse effects	Newcastle	1	2	1	25	50	25
	Warwick	2	3		40	60	0
	Glasgow	4	3	1	50	38	13

5.3 Perceptions of mistakes and near-misses

Both questionnaires asked respondents if they had witnessed mistakes or near-misses committed by F1s. Frequencies are given in Table 5.7. While a minority of doctors and nurses reported witnessing mistakes or near misses in Newcastle and Warwick, a majority did in Glasgow. Again, it is possible that this is an artefact of a lower threshold on the part of consultants, again being over-represented (see table 5.8). The majority of pharmacists in all locations reported witnessing mistakes and near misses.

Table 5.7. Responses to 'have you witnessed a mistake/near miss'. (Interview responses are given in brackets).

		Doctors/Nurses		Pharmacists	
		Yes	No	Yes	No
Newcastle	Witnessed mistake	6 (6)	15 (4)	4	0
	Witnessed near miss	10 (3)	10 (7)	4	0
Warwick	Witnessed mistake	6 (1)	9 (1)	3	2
	Witnessed near miss	5 (1)	10 (1)	4	1
Glasgow	Witnessed mistake	16 (3)	8 (3)	8	0
	Witnessed near miss	15	9 (6)	7	1

Table 5.8. Proportion of responses indicating errors are 'sometimes' or 'often' observed, by professional group. Compare with table 5.2 to possibly explain differences between sites

Group	% of sample	% of 'sometimes' or 'often' observed error or near miss responses
Consultant	23	33
F2	2	4
Nurse consultant	3	4
Sister	18	15
SpR/ST	15	24
Staff nurse	31	15
Other	8	5
Total	100	100

The questionnaires then went on to ask more detailed questions about the mistakes/near misses witnessed (Tables 5.9 and 5.10). These indicate similar patterns to the overall figures, with perceived mistakes/near misses being consistent across each of the areas given in the questionnaire.

Table 5.9. Areas in which mistakes and near misses are perceived by doctors and nurses

		Never	Sometimes	Often	Don't know/ missing
Prescribing	Newcastle	4	10	2	5
	Warwick	1	4	2	8
	Glasgow	1	11	5	8
Hospital procedures	Newcastle	10 (1)	4 (2)	(2)	7 (5)
	Warwick	3 (1)	2		10
	Glasgow	6	9		10
Diagnosis / knowledge	Newcastle	6	6		9
	Warwick	2	4	1	8
	Glasgow	3	13	1	8
Calling for help	Newcastle	8 (4)	6 (1)		7 (5)
	Warwick	4	2	1	8 (1)
	Glasgow	5 (1)	11	1	8 (5)
Acute management	Newcastle	5	7		9
	Warwick	3	3		9
	Glasgow	3	13		9

It is worth noting that there are no areas of prescribing in which pharmacists report F1s as 'never' making mistakes or 'never' having near misses, although several doctors and nurses do say that mistakes are not made in prescribing. This reflects pharmacists' greater depth of knowledge and awareness of F1 prescribing.

Table 5.10. Areas in which mistakes and near misses are perceived by pharmacists

		Never	Sometimes	Often	Don't know/ missing
Using appropriate drugs	Newcastle		4		
	Warwick		3	1	1
	Glasgow		6	1	1
Calculating dosages	Newcastle		4		
	Warwick		4		1
	Glasgow		7		1
Prescriptions and drug charts	Newcastle		2	2	
	Warwick			4	1
	Glasgow		4	4	
Hospital procedures	Newcastle		4		
	Warwick		1	3	1
	Glasgow		6	2	
Legal requirements for controlled drugs	Newcastle		1	2	1
	Warwick			4	1
	Glasgow		2	5	1
Diagnosis and medical knowledge	Newcastle	1	2		1
	Warwick				5
	Glasgow	1	1		6
Calling for help	Newcastle	2	2		
	Warwick	1		1	3
	Glasgow	1	1		6
Acute management	Newcastle		4		
	Warwick		1		4
	Glasgow		1		7

5.4 Communication skills

Both questionnaires asked respondents the same questions about the F1s' communication skills, so the samples are pooled in this section. There are very low frequencies of poor communication, with all sites indicating at least adequate communication skills on starting F1 (table 5.11).

Table 5.11 Perceptions of new F1s' communication skills

		Poor	Adequate	Good	Excellent	Don't know/ missing
Communication skills on starting	Newcastle	1	3	7	11	3
	Warwick		4	11	5	
	Glasgow		8	17	5	3
Communication skills with patients overall	Newcastle	1	1	14	8	1
	Warwick		4	12	4	
	Glasgow		11	17	3	2
Explaining management and treatment	Newcastle		12	9	2	2
	Warwick	3	6	8	2	1
	Glasgow	3	13	13		4
Negotiating treatment plan	Newcastle	2	10	7	2	4
	Warwick	2	5	7	2	4
	Glasgow	2	15	10		6
Using appropriate vocabulary	Newcastle	1	6	10	6	2
	Warwick		7	9	3	1
	Glasgow	1	13	17	2	
Dealing with challenging patients	Newcastle	3	9	7	2	4
	Warwick		6	5	1	8
	Glasgow	6	12	12	1	2
Dealing with relatives	Newcastle	2	3	14	2	4
	Warwick	1	8	6	2	3
	Glasgow	6	10	13		4
Communication with pharmacists	Newcastle		5	12	4	4
	Warwick	1	5	8	3	3
	Glasgow	1	11	15	1	5
Communication with doctors	Newcastle		4	10	9	2
	Warwick		4	10	5	1
	Glasgow		9	16	5	3
Communication with nurses	Newcastle		6	8	9	2
	Warwick		6	8	5	1
	Glasgow	1	9	15	4	4

5.5 Free text comments

5.5.1 Medical and nursing staff

Alongside the structured questions, interview respondents provided commentary and opinion on the questions. Areas to give free text comments were also provided in the questionnaires (in which the majority of respondents gave some comment). Questionnaires were given arbitrary identifiers for data tracking when they were returned – these are quoted here with the professional group indicated on the questionnaire.

Comments highlight a range of opinions on preparedness, from explicit knowledge gaps to the need to develop skilled behaviour with practice. It was noted by interview respondents that while they may be prepared in terms of knowledge and skills, new F1s were not prepared for the volume of patients.

> *"Good at taking factual account less good at sorting 'wheat from chaff'"* (Newcastle triangulation questionnaire respondent, NC4, doctor)

> *"Not always fully knowledgeable of some basic anatomy"* (Warwick triangulation questionnaire respondent, WC7, nurse)

> *"Hardly seen F1s in theatre in spite of surgical rotation most can't stitch up (which for many final year medical students is a box that needs ticking)"* (Glasgow triangulation questionnaire respondent, GC14, doctor)

Issues of opportunities to practise were also noted, with several respondents from all sites noting that some procedures are mostly carried out by nurses, and provide limited opportunities for F1s to perform them, specifically catheterisation, naso-gastric tube insertion and IV drugs.

> *"Several FY1s from Glasgow had never put venflon in real people before"* (Glasgow triangulation questionnaire respondent, GC13, doctor)

The support of experienced nurses was noted by several respondents, but the effect of skilled nursing staff being able to perform tasks previously carried out by doctors was also observed:

> *"[IV drugs are] given by nursing staff in the main"* (Newcastle triangulation questionnaire respondent, NC7, nurse)

> *"A lot of the general skills e.g. catheterisation N-Gs, IV drugs and IV drips are done by nursing staff so F1s don't get much opportunity to practise especially if student nurses on the wards as well"* (Warwick triangulation questionnaire respondent, WC8, nurse)

> *"We now have so many other staff doing tasks like ECGs, venepuncture cannulation that the opportunities for F1s is more limited so they don't have the opportunities to become confident with these tasks"* (Glasgow triangulation questionnaire respondent, GC15, nurse)

Specific mention of the lack of experience was noted in communication skills and acute management, with interview respondent making specific reference to resuscitation.

> *"Interpersonal skills very poor and they come across as very nervous when using practical skills decision making skills can be poor talking to families/patients as something that needs fine tuning and practice"* (Newcastle triangulation questionnaire respondent, NC18, nurse)

> *"Most lack experience and expertise in dealing with acute situations"* (Glasgow triangulation questionnaire respondent, GC4, nurse)

Several respondents explicitly noted the variation between F1s in a number of areas, making clear that they do not emerge from medical school with homogenous skills and abilities. One respondent noted difficulties with

> *"It is very hard to class everyone the same some F1s were brilliant but a minority needed a lot of guidance and advice"* (Newcastle triangulation questionnaire respondent, NC17, nurse)

> *"Varied according to individual. Some picked up quickly, others were slow to assimilate procedures"* (Glasgow triangulation questionnaire respondent, GC25, nurse)

> "In general experience has been good one or two previous F1 had difficulties in the past" (Warwick triangulation questionnaire respondent, WC6, nurse)

Some comments referred to the development of expertise during the placement:

> *"I think they need the exposure and experience to realise that everything doesn't fit neatly into guidelines or nice clinical situations and realise that much of medicine relates to uncertainty and balancing risks/benefits certainly drugs and interactions seems to be a widely covered field"* (Newcastle triangulation questionnaire respondent, NC22, doctor)

> *"Struggled at first - improved during the rest"* (Warwick triangulation questionnaire respondent, WC2, doctor)

> *"Lack of A&E experience made it difficult to prioritise but this skill developed"* (Glasgow triangulation questionnaire respondent, GC22, doctor)

However others made specific reference to gaining more experience while an undergraduate:

> *"Final year attachments need to be much more structured to ensure students gain experience of making diagnosis and initiating management-F1's* (or some of them) *have difficulty changing from students to professional* (employed) *practitioners"* (Newcastle triangulation questionnaire respondent, NC4, doctor)

> *"Undergraduate training does not prepare them for postgraduate practice it is usually the fy1s who feel that universities with longer shadowing periods provide better prepared fy1s"* (Warwick triangulation questionnaire respondent, WC3, doctor)

> *"More time not less needs to be spent in the final year on the ward participating in all aspects of care"* (Glasgow triangulation questionnaire respondent, GC7, doctor)

Some responses were very positive though, including references to the F1s being able to ask for help. The role of senior support in F1s' adaptation to their job was noted. One interview respondent noted that consultant confirmation of diagnosis for example is important for learning and confidence building.

> *"Must be aware no one expects them to know everything - ask there is lots of experience about which people will share - its the best way to teach"* (Newcastle triangulation questionnaire respondent, NC1, nurse)

> *"Generally, I feel that F1s clinical and practical skills were more than adequate"* (Glasgow triangulation questionnaire respondent, GC25, nurse)

> *"I feel they need a bit more moral support from their services and their study time should be teamed with ward cover - can be stressful learning"* (Warwick triangulation questionnaire respondent, WC16, nurse)

Mistakes described in free text fell into prescribing errors (incorrect dosage, not being aware of correct drugs), and failing to recognise acute conditions.

5.5.2 Pharmacists

Pharmacists noted weaknesses in most areas of prescribing, but worse in those areas where the F1 is not expected to rely on senior help – specifically taking drug histories.

> *"Often use only one source they still do not record the source in the notes"* (Newcastle triangulation questionnaire respondent, NP3, pharmacist)

> *"Sources of the drug history are usually not documented often several errors"* (Glasgow triangulation questionnaire respondent, GP5, pharmacist)

> *"Although drugs are listed often no doses or strength recorded and drug history"* (Warwick triangulation questionnaire respondent, WP3, pharmacist)

Questionnaire respondents noted problems with calculating dosage and choosing appropriate drugs, and one Newcastle interview respondent noted severe problems in F1s simple arithmetic as applied to calculating dosage by weight, or even calculating the number of vials necessary to constitute a dose for injection or infusion.

> *"Errors in calculating dosages"* (Newcastle triangulation questionnaire respondent, NP2, pharmacist)

> *"Many required amendment with reflect to dose and appropriate formulation etc"* (Glasgow triangulation questionnaire respondent, GP8, pharmacist)

> *"They don't have an appreciation for age, renal status, drug monitoring"* (Warwick triangulation questionnaire respondent, WP2, pharmacist)

Others noted that that F1s were good at referring to pharmacists or senior doctors to check information, although some respondents noted that there may be too much deference to others' expertise – they 'do as they're told' – precluding their developing their own.

> *"Their training does not seem to equip them with the skills necessary to prescribe accurately or appropriately some are better than others especially those F1s who are older with a 1st degree who seem to question and engage pharmacists on drug selection rather than the younger F1s who just seem to blindly follow our advice and don't seem to learn"* (Warwick triangulation questionnaire respondent, WP2, pharmacist)

Individual F1s were identified as responding differently to instruction and advice.

> *"The huge variation between different fy1s makes me inclined to think that a large part of it has to do with attitude as much as it has with training and competence the ones who are most difficult to deal with are those who don't see why accuracy particularly at the interface between primary and secondary care and vice versa is really important"* (Glasgow triangulation questionnaire respondent, GP6, pharmacist)

Problems with paperwork were also noted, completing drug charts and prescriptions. Some respondents noted that F1s do not also realise that a prescription is an instruction, which must be easily read by a nurse:

> *"Some badly written kardexes, drugs prescribed by brand name"* (Newcastle triangulation questionnaire respondent, NP2, pharmacist)
>
> *"Still not writing all in capital letters - difficult for nurses to read"* (Warwick triangulation questionnaire respondent, WP3, pharmacist)
>
> *"Variable some didn't prescribe - generally handwriting difficult to read"* (Glasgow triangulation questionnaire respondent, GP4, pharmacist)

As with the broader clinician questionnaire, errors were mostly noted in dosage, drug interactions, and basic knowledge of drug types (for example not knowing that a particular antibiotic contains penicillin). One questionnaire respondent attributed some errors to failings in clinical supervision:

> *"Consultants didn't seem to adequately supervise their F1s bad practices are something even encouraged because in reviewing a patient they seem to not also review drug index together at the same time"* (Warwick triangulation questionnaire respondent, WP2, pharmacist)

5.6 Conclusions from triangulation questionnaire

Overall the clinical teams who work with new F1s see them as more prepared than do the F1s themselves, although there are variations between areas of practice and between medical schools (although sample sizes mean these cannot be given too much weight).

Prescribing is not reported as a major area of unpreparedness by other doctors and nurses, but it is by pharmacists, who have more awareness of F1s' prescribing behaviour, and greater expertise in pharmacology and prescribing.

Chapter 6. Qualitative analysis

6.1 Coding and analysis of initial interview data

The theoretical approach adopted for the qualitative part of this study was grounded theory[1]. The two central features of grounded theory are, firstly, that the approach is iterative, meaning that the data collection and analysis proceed in tandem, referring back to each other (e.g. the initial analysis informs the next part of data collection) and, secondly, it is concerned with the development of theory from the data.

The sample of respondents from the three medical schools was selected purposively in advance to help answer the research question rather than theoretically as the analysis progressed. Other aspects of purposive selection were to include graduates from each quartile of the MTAS academic scores, and to aim for representation of gender, age, ethnicity and disability. However, pharmacists were selected from theoretical sampling once the importance of prescribing became evident.

6.1.1 The development of the analysis

The questions at the start of the study focused on preparedness. Responses to these initial questions allowed the development of more focused questions. For example, responses at the first interviews in Warwick indicated that anatomy might be an important issue, which was then included in later interviews and those at Glasgow and Newcastle.

The analysis of the first interviews suggested a range of potential areas of lack of preparedness which were discussed at the collaborative research meetings. These issues were then developed into questions for the follow-up interviews.

6.2 Coding and data analysis

Open coding

The coding of the data went through various stages. The first stages involved becoming familiar with the data and sharing thoughts about the emerging categories at the collaborative research meetings.

A coding frame was generated collaboratively to ensure comprehensive coverage of the data from all sites.

Axial coding

Once the data was coded under the headings and identified from the open coding stage, all data was read and coded under each heading and then compared. Some codes were very strong and it was felt that these were themes that could stand alone, for example, prescribing. Other themes were weaker and were related to each other, for example, on call and ward work. Links were made and these concepts became part of the theme ‘managing the duties of a doctor’. Later it became clear that other themes were related to ‘on the job’ learning.

Some *a priori* codes such as ‘transition’ came from the research question, while others came from the data e.g. dealing with nights and on call. Others were analytical and came from patterns identified in the data e.g. internal and external factors impacting on preparedness.

Selective coding

This involves identifying a core category that explains most if not all of the data. The core category came into focus towards the end of the analysis of all the data sets. It became clear

that the themes that identified lack of preparedness were all associated with lack of 'on the job' exposure.

6.2.1 Substantive theory

The development of theory depends on having explored the themes within the data to a point of 'saturation' whereby no new information was coming from the later interviews and there was no need to extend the sample further.

The core category was key to identifying a theory that would predict preparedness.

The theory generated from analysis is that preparedness for work is related to exposure to clinical practice. The greater the exposure to clinical practice prior to starting work as an F1 the greater the level of preparedness.

The following people conducted interviews and focus groups and coded data. (JI, BCB, GM, CK, CD, BB, JM, MW, MD)

The following people conducted the selective coding (JI, BCB, GM, CK)

The following people identified the core category (JI, BCB, GM, CK, JS, EP, JM)

6.3 Themes

The primary themes identified by the above process were:

- Experience of transition from medical student to doctor
- Factors which affect the transition
- Knowledge of roles
- Managing the duties of a doctor
- Knowledge
- Clinical and practical skills
- Prescribing
- Communication skills
- Identifying learning needs
- Portfolio work
- Improvements to training

The following chapters present analysis of the initial primary sample interviews, follow-up interviews and triangulation interviews separately, to illustrate the parallel emergence of the themes. Overviews of each site are presented, followed by a synthesis highlighting common ground and differences between sites.

Reference

[1] Glaser B and Strauss A. *The Discovery of Grounded Theory.* Aldine, New York. 1967

Chapter 7. Transition – 'Becoming a doctor'

Beginning work as a doctor involves a transition from student to medical professional which may be perceived in a number of ways by new doctors and those working with them. This theme focuses on that transition from student to doctor: how students anticipated the transition in the initial interviews, and how they felt they had progressed towards 'feeling like a doctor' at the end of their first placement. The triangulating sample of undergraduate tutors, Foundation Programme educational supervisors, key managers and portfolio assessors were asked how they felt the new graduates negotiated the transition.

7.1 Newcastle graduates

7.1.1 Expectations of Newcastle Primary Sample

Looking forward to being a doctor

The sample of Newcastle graduates were on the whole looking forward to starting work, with their positive expectations largely related to taking on the role of a doctor: 'being useful' on a ward and having some responsibility; putting skills into practice and furthering their development. Pragmatically, 'being paid' was something to look forward to after years as a student.

> *"I guess I think I'm a bit apprehensive, but I'm looking forward to actually getting the responsibility and putting skills into practice"* (NPS190, first interview, MTAS quartile 1)

Related to this was the sense of being a proper part of a team, with a defined role, and staying with a team for long enough to be considered part of it. This in turn would provide greater continuity in learning and development.

> *"I think it would be nice to play more of a part in patient care rather than kind of being stood on the side line"* (NPS18, first interview, quartile 4)

At the same time, there were some anxieties and concerns about the transition. Prominent among these is the converse of the benefits outlined above – having the responsibility and authority for patient care, and making clinical decisions in the context of prioritisation and acute management.

> *"I think that is probably something I would have mentioned about maybe being a bit more worried about it, obviously there are a lot of things that you do at the same time, erm so we find sort of how we approach that, learning to prioritise who needs attention first depending on how many members of staff are available to see the other patients…I suppose prioritising isn't really something that we get teaching on in particularly, I mean we do get taught on how to recognise it [prioritising] with patients but there is not an awful lot of emphasis on [it]…I mean it's more sort of you are expected to pick up or develop a strategy…"* (NPS9, first interview, quartile 4)

Associated with responsibility were other anxieties: the risk of error and coping with making a mistake, and the pressures of working hours, not being able to just leave at the end of the working day, and being on call. These lifestyle elements may be seen as the converse of 'being paid'.

There were concerns about having had insufficient practice of some procedures which they anticipated having to perform (e.g. arterial blood gases, attending crash calls), and some uncertainty about when it would be appropriate to ask for help. However, the sample largely anticipated being well supported in their new role.

7.1.2 Experience of Newcastle Primary Sample

Feeling like a doctor

By the time of their follow-up interview the majority of the new F1s said that they did now 'feel like a doctor'. The main reasons for this, in accord with their expectations, were the increased responsibility, being called a doctor and having a specific role to play. The transition was not immediate though, and it is perhaps telling that one F1 describes their contribution as 'helping out':

> *"A terrifying day, very scary and didn't feel like a doctor that day at all"* (NPS209, follow-up, quartile 1)
>
> *"Suddenly I have to be the one to make the decision and I feel like I have a role in the team this time around, instead of just being an observer."* (NPS143, follow-up, quartile 2)
>
> *"I think you notice a much bigger difference in the way that staff interacts with you. You feel you're a lot more useful around the wards and things and you can help out and you've got much more of a role than when you're a student."* (NPS18, follow-up, quartile 4)

Some F1s felt more hesitant about their change in status: seeing the move from student to registered doctor as still ongoing.

> *"Until you've got your full registration I don't think you completely feel like a doctor because you're aware …that in effect you're still being very closely supervised"* (NPS106, follow-up, quartile 3)
>
> *"Sometimes I feel like a doctor …[sometimes] you still feel like a bit of a medical student and you know you are very much ...the lowest of the low in the team"* (NPS224, follow-up, quartile 1)
>
> *"It's obvious as juniors you're not proper doctors, you're never by yourself"* (NPS24, follow-up, quartile 4)

Simply being called 'doctor' marked the step up in the responsibility in the eyes of others, which was daunting for some F1s.

> *"…the first day, I almost said that to one of the pharmacists who had asked me to write something up and I was about to say 'hang on, I'll just go get a doctor to sign it'."* (NPS24, follow-up, quartile 4)
>
> *"…a patient went into resus and the nurse said 'Doctor to resus please'. And I looked around and I was the only doctor."* (NPS194, follow-up, quartile 1)

7.1.3 Newcastle Triangulation

Respondents from the triangulating samples recognised that the transition from medical student to junior doctor involves both taking on responsibility in the application of medical knowledge, and a shift from learner to practitioner:

> *"The overwhelming feeling, certainly for the first week, from all of them, is that they're not prepared, because nothing can prepare you for doing it until you've actually done it"* (N Key Manager 1)
>
> *"As a medical student … you get a very superficial view when you're attached to a ward …and you don't ever get as involved with the patients and with working as a team. But that's what being a medical student is and that's what being a doctor is - they're different."* (N Undergraduate Tutor 13)

However, the transition is also identified as involving a substantial change in lifestyle. Whilst medical graduates may not be *fully* prepared for their role as an F1 doctor, several commented favourably on their maturity and adjustment to their new role.

> *"It is a huge transition for them. To start to be responsible for patients and to have to put in the hours and the effort and the work on the wards ...it is very difficult to be prepared for that, but I would say that most of them cope very well with the transition"* (N Undergraduate Tutor 11)

> *"I am really very impressed by the F1s and their maturity actually as soon as they have settled down within a few weeks or a month or two, they are very mature people and very, very impressive"* (N Educational Supervisor 21)

Their ability to step into the role of doctor as a healthcare professional was also commented on, with favourable remarks about the new F1s' approach to work and their positive approach to learning.

> *"This lot are really good…their overall professionalism is better…sometimes they used to come and they still used to think they were medical students and most of them don't do that now, they realise there is a bit of a difference"* (N Educational Supervisor 14)

> *"They are fairly good at the moment, they are quite focused and most of the young doctors are pretty willing to learn, they want to do well…"* (N Educational Supervisor 9)

However, some comments suggested that some new F1s had difficulty adjusting to the practical realities of working life, and the basic tensions of being a part of a large organisation.

> *"A lot of them haven't been employed before and don't know what they need to do in terms of reporting sickness, reporting absence, holiday leave approval, that kind of stuff"* (N Portfolio Assessor)

> *"I do think that they are unprepared for professional working life, that whole change from being a student to being a doctor and getting money and being paid and having a job. I don't think it sinks into them for a few months ... Their experiences of workplace, you know, the fact that they will have things not go their way, that there'll be people they disagree with, that they'll be upset ... there'll be staff shortages, that there's an organisation that demands, all the kind of things that people get used to when you're in a job… I think they're unprepared for the environment that they're thrust into very, very suddenly".* (N Key Manager 6)

One respondent also identified the complexity of the F1s' role in particular - they are not just employees but also trainees with multiple roles and responsibilities to different stakeholders:

> *"When they are a student they have one relationship, that is the University and with their learning. But in work they have got a relationship with an employer, a relationship with a Deanery, they have got a relationship with a consultant that they are working for, they have got broader relationships with the General Medical Council ... and they have got a relationship to the NHS....all of these things seem to pass them by"* (N Undergraduate Tutor 11)

7.1.4 Summary of transition for Newcastle graduates

Generally the Newcastle graduates felt prepared to start work as a doctor. There were some general, but mild anxieties about starting work and some particular anxieties about certain areas (e.g. prescribing) which will be covered in later chapters. The perceptions from the triangulation data supported the perceptions, both the strengths and the concerns, of the primary sample, referring to the increase in responsibility and recognised the difference in preparation for the job and the large 'step-up' in terms of doing the job for real.

7.2 Warwick Graduates

7.2.1 Expectations of Warwick primary sample

Looking forward to being a doctor

Having undertaken at least seven years at university (Warwick graduates will have studied for at least three years for their first degree in a relevant subject area), the final year medical students were looking forward to becoming junior doctors. The key themes they mentioned in this context were: putting their training into practice, being useful, and becoming part of a team.

> *"I've been limited to what I can do really so I am excited that I will be able to do all of these other things I have been itching to do for quite a while."* (WPS22, first interview, quartile 4)
>
> *"It's time to feel more than a bit of a spare part."* (WPS2, first interview, quartile 1)
>
> *"…hopefully making a difference to the patients who I come into contact with."* (WPS18, first interview, quartile 1)

Others highlighted the responsibility they would be taking on; their engagement with patients over the entire period of their hospital stay; opportunities to advance their skills further, recognising that this transition is part of a longer development period; and that as a junior doctor they would also be taking on a paid job after a long period of study. Whilst earning was not the predominant issue it was a much welcomed aspect.

Mixed feelings were characteristic of the transition period: on the one hand looking forward to becoming an F1 doctor and on the other hand a certain degree of apprehensiveness.

> *"You suddenly take responsibility for that, and whilst it's a little bit terrifying, it's also very rewarding"* (WPS5, first interview, quartile 3)
>
> *"I am a bit worried about starting the job, but I think that's quite natural having talked to other students and other doctors."* (WPS24, first interview, quartile 1)

The apprehensiveness mainly resulted from insecurities around what the job would actually entail: lack of exposure to real life situations, lack of experience and the fear of being left on one's own, despite assuming that they are going to be well supported. This 'fear of the unknown' may be allayed during the shadowing period:

> *"Initially, before the shadowing, I was a bit: 'Oh, my God'. I know all my text books... brilliant, but I haven't got a clue how to how to be a doctor. … And now, three weeks into shadowing, we're like: 'okay, yeah', it doesn't look quite as hard as we first thought, which is quite reassuring."* (WPS6, first interview, quartile 3)
>
> *"I think if you'd asked me 2 days ago, [before shadowing] I would have been less confident."* (WPS1, first interview, quartile 1)

There was a feeling from some respondents that the transition may be easier than their apprehensions indicated, with F1 a starting point for much learning which still lay ahead of them.

> *"The basics of our jobs, that's what I think that's what is your responsibility and you prepare, anything else we will learn throughout the year."* (WPS17, first interview, quartile 3)
>
> *"I feel confident that I can get through it. I don't think that people are expecting the world of you. I think part of you is apprehensive in thinking you have to do it all yourself whereas in reality it's going to be much easier than you think. I think there's not going to be quite the responsibility level you lay on yourself."* (WPS1, first interview, quartile 1)

This progress was seen to be eased by the support of others, with respondents prepared to ask questions, helped by teaching they had received.

> *"I'm certainly not going to fish and worry on my own, because I'm aware that there's help out there."* (WPS15, first interview, quartile 3)

> *"There are adequate guidelines and you can also ask seniors, refer to the BNF or ask the clinical pharmacist. I think gradually with time that would push the confidence but we have been taught adequately I feel."* (WPS19, first interview, quartile 4)

There were some hints of unpreparedness in particular areas (to be addressed in subsequent chapters) but overall, most of the final year medical students felt prepared.

7.2.2 Experience of Warwick primary sample

Feeling like a doctor

By the time of the follow-up interview, some three months into their job, there was a sense of feeling like a doctor among F1s due to the responsibilities they had taken on and expectations placed on them by staff and the public.

> *"I think you feel like a doctor because of the respect that you get, because of the responsibilities that are placed on you by the nursing staff and by others around you. So you do feel like a doctor once you start work, after a couple of weeks."* (WPS17, follow-up, quartile 3)

> *"I think there's a change in how your seniors react to you. You're involved a lot more in decision making than you were as a student, where you just observed. I think that's probably the largest factor."* (WPS20, follow-up, quartile 4)

Overall preparedness was adequate, if not perfect:

> *"I think as much as I could have been. I think obviously I would have found it easier if I had have done some respiratory medicine."* (WPS18, follow-up, quartile 1)

> *"I could do all the practical stuff that I was expected to do. I was prepared for ward rounds. I knew what to do, generally, I was prepared, I think."* (WPS1, follow-up, quartile 1)

Others argued that preparedness comes with experience.

> *"I don't think I was [fully prepared] in any of them actually. I don't think you can be until you do it, ultimately."* (WPS10, follow-up, quartile 2)

Looking after patients was seen as an essential part of being a doctor, but on days where administrative duties dominated there was less of a sense of feeling like a doctor, as an F1 in a supernumerary job described:

> *"If you're seeing patients and making decisions, you feel more like you're doing the 'doctor' job, rather than just being a glorified secretary, which can happen on some days. It just depends how the day goes."* (WPS4, follow-up, quartile 1)

Others sometimes needed to remind themselves of the change in status whilst working in the same hospital in which they trained as a student.

> *"Sometimes you forget. I think because I am going to the kind of hospitals that I was a student in that makes it feel like sometimes I am just doing the same thing."* (WPS1, follow-up, quartile 1)

The sense of still being a learner, at the beginning of a learning programme, may undermine the sense of being a doctor for some.

7.2.3 Warwick Triangulation

There was a general view that F1s were well prepared, especially for taking case histories and examining patients, although a lack of learning opportunities and changes to working patterns contributed to lower levels of preparedness, especially for acute emergencies, also reflected by F1 experiences.

> *"I think they are fairly typical to be honest. They are all lacking in confidence when they first start until they get more clinical experience and then they find their feet more."* (W Educational Supervisor 4)

> *"They know how to take a history and examine patients, yes, I am quite happy with them really."* (W Educational Supervisor 1)

> *"The areas where I think a lot of them, and it is not their fault, I don't think they have had anything like adequate exposure to emergency medicine and recognising who is sick and who isn't. That is a problem a number of my colleagues have raised and it possibly reflects the way the final year medical students have to be taught. They don't get that 'hands on' experience with emergencies…"* (W Undergraduate Tutor 4)

However, other respondents were very positive about F1s and thought that they were prepared to work hard.

> *"I think the positive thing that I would say is that most of the medical students, is that I find them to be very honest, enthusiastic and I think they are, they will do whatever you ask them to do and they want to acquire knowledge"* (W Undergraduate Tutor 1)

> *"I think the great advantage of Warwick students is that they are mature and they are fairly quick learners and they really want to do it and they've taken on quite significant debt at the wrong time of their lives. So I think from that point of view they are probably better and faster to respond."* (W Undergraduate Tutor 4)

7.2.4 Summary of transition for Warwick graduates

The transition to starting work as a doctor was characterised by mixed feelings: looking forward to starting work and taking on the role of doctor but with a certain degree of apprehension. This centred on lack of exposure to real life situations, lack of experience and fear of being left on one's own. Other concerns from the primary sample focused mostly on tasks that were mainly learned on the job, e.g. practical skills, prescribing, acutely ill patients, ward rounds and note taking. Perceptions from the triangulation data were that new F1s were generally well prepared to start work, although they did refer to a lack of learning opportunities reflecting less preparedness in the areas of dealing with acute emergencies, note keeping and prescribing. There was also a perception that some under-prepared F1s should be guided away from medicine before they reach that stage.

7.3 Glasgow Graduates

7.3.1 Expectations of Glasgow primary sample

Looking forward to being a doctor

The majority of the respondents interviewed in Glasgow said they were looking forward to becoming a doctor and starting work. They were eager, even excited, to put into practice what they had learned, to have responsibility, to be a real part of the team and make new friends and to finally earn some money.

> *"I see this, I suppose, as being the end goal…it's to qualify and start work. It's exciting that it's all coming to fruition".* (GPS8, first interview, quartile 2)

> *"It's more just going into Hospital and actually feeling like you have a role and that you are part of a team, because they always say that students are part of a team but it's not true."* (GPS11, first interview, quartile 1)

> *"Definitely [looking forward to starting work as a doctor], I mean it is what we've been training to do, so to actually start and earn some money".* (GPS17, first interview, quartile1)

This was balanced by an anxiety felt to be a natural response to the transition, and in at least one case partly due to their personality.

> *"I'm fairly nervous about it as well but I think that is natural going into a new profession…I don't think with any profession you actually learn the job until you are doing it all the time."* (GPS2, first interview, quartile 4)

> *"I'm quite apprehensive and I think over the last few weeks my anxiety has started to build a wee bit just thinking about starting and worrying, you know, just how it will be at first and yes I think I am quite anxious if I'm honest, but I've got that kind of personality as well."* (GPS19, first interview, quartile1)

Respondents acknowledged that work as an F1 would be different from being a student but felt they had had enough of being a student and wanted the change in role that would come with being an FY1 doctor despite the impact on their lifestyle:

> *"I guess my whole life will change because ….it will just be in the hospital 8 – 6 whatever, and that will be a change in itself"* (GPS11, first interview, quartile1)

Concerns about the large increase in responsibility in a range of areas – knowing enough, prioritising their time, coping with night shifts, taking decisions etc – were recognised, and felt to be temporary, and expected to be resolved quite quickly once they started.

> *"That is probably going to be the biggest change because up until now you haven't had any responsibility other than to yourself"* (GPS1, first interview, quartile 2)

> *"I think I would expect that there are a lot of things that I need to pick up and learn quickly within the first couple of weeks and I think plus the fact that I know there are some weaknesses in my knowledge I think there is certainly a lot of work to be done in the first month, but after that first month it will be a lot better I hope."* (GPS5, first interview, quartile 4)

7.3.2 Experience of Glasgow primary sample

Feeling like a doctor

Reflecting on what the role of F1 had actually entailed in the first placement, several commented that they felt there was a limit to how much any degree course could actually prepare them for the realities of work. This was partly to do with the variety of different hospital systems encountered and the different ways in which hospital departments operate,

and partly a feeling that you simply cannot fully understand a job until you are actually doing it.

> *"I wasn't really prepared for working life either; I don't think you really are until you start work. You know, actually just prepared for how tired you would be and how little time you have to yourself was quite a big shock in the first few weeks. I've got used to that now [laughs]."* (GPS4, follow-up, quartile 1)

> *"You're never going to be completely prepared for these environments and you're never going to, you know, feel a hundred per cent. But I can't think that there was anything much more that, you know, you could've done as a university to prepare me for this."* (GPS13, follow-up, quartile 2)

F1s mentioned that the volume of work, the speed at which they were required to work and the pressure to get things done had all come as a bit of a shock.

> *"And I have thought…before doing the job, oh I feel quite confident about my clinical skills….but actually the summer comes and goes and suddenly you're on the spot and having to be quick. And it's a different kettle of fish and you don't feel as prepared. I think that's the biggest thing I didn't feel prepared about; the speed at which you have to work is quite a pressure."* (GPS19, follow-up, quartile 1)

However, there was also the satisfaction of actually doing the job, having one's opinion listened to and feeling an important member of the team, rather than just being a student bystander.

> *"I just felt that as a medical student you were sort of very much ancillary and nobody really cared much about what you were doing, [now] people are now very much, you need to be able to do things for them and you're regarded as much more a part of the team."* (GPS18, follow-up, quartile 4)

7.3.3 Glasgow Triangulation

By contrast to the perceptions of the F1s, there was a feeling among some of the triangulating respondents that some FY1 doctors found it difficult to make the transition from student to doctor and take on the responsibilities involved in their new role. This was attributed in part to the training status of new graduates, undermining their ability to adopt a professional outlook:

> *"…the number of times that they phone up if they are on call for a weekend and say 'Oh I'm not feeling well I won't be in this weekend', and that has been noticeable how frequent that is…. there are other examples of people having social events at a weekend, trying to swap the weekend not being able to and then just not turning up for the job... …I think they find it very difficult to make that transition …this concept that there is still you know studying and learning as we enforce that."* (G Key Manager 5)

Other respondents criticised the 'clockwatching culture' among FY1s who did not seem to have the same sense of responsibility towards their patients as previous generations had:

> *"They are very conscious when they start of what their rights are in terms of I start at 8.00 and I finish at 5.00 and I have to have lunch and I have to have this and I have to have that and I have to have the other and the professionalism has been diluted by that and some places lost completely."* (G Foundation Year Educational Supervisor 6)

However, the prevailing view was that these attitudes are due to the changes in the system of postgraduate training, including how foundation trainees were allocated to their posts, rather than to undergraduate education:

> *"Nowadays people arrive and we really don't have ownership of them. We don't have a contract with them in the same way that we had before… that is a much looser arrangement and I certainly don't have the same sense of responsibility*

> *towards these young people that I had before. If they didn't want to come and work here I wouldn't have picked them if I had been asked. Somebody else sent them here, they can look after them."* (G Undergraduate Tutor 4)

Ownership was also an issue in how the respondents perceived the ownership of patients by the FY1 doctors:

> *"In the past it was a sort of ownership of patients and you therefore had this duty of care to patients because you knew it was your patient and you were prepared to stay behind, you were prepared to come in early, you were prepared to do whatever it took really when you knew what that patient needed and you knew that it was your responsibility to do it and I think that has definitely changed."* (G Key Manager 3)

It was also felt that service pressures were making it more difficult for respondents to supervise trainees in the way that they had in the past:

> *"In some ways I would say I have less time to kind of slow down when I am seeing individual patients in the ward rounds, saying to the FY1, you know, what do you think about this patient, what is your opinion, how would you manage that?"* (G Foundation year Educational Supervisor 2)

7.3.4 Summary of transition for Glasgow graduates

The majority of medical graduates were looking forward to starting work, although some expressed anxiety which centred on the increase in responsibility, knowing enough, being able to prioritise, coping with night shift and decision making.

At the end of the first placement the new F1s reflected back and reported that they felt the medical school could only prepare them for the job up to a certain point, partly due to the variety of hospitals and placements experienced as a student, but also because some aspects of the job cannot be fully understood until you are doing it. F1s did refer to the speed, volume and pressure of work that came as a bit of a shock to them when they started.

Perceptions from the triangulation data were that some medical graduates found it difficult to make the transition from medical school to doctor. Some inferred an apparent deterioration in professional attitudes that was manifest in clock watching and knowledge of their rights as opposed to their duties as doctors; however this was attributed to the format of Foundation Programme rather than the input of medical school.

7.4 Transition – 'Becoming a doctor': common themes and differences between sites

Overall the medical graduates at each of the three medical schools were looking forward to starting work although all shared some anxieties about their abilities to do everything the job required. Concerns mainly focused on skills that are largely acquired and practised on the job, i.e. prescribing, dealing with acutely ill patients, prioritising and on call. Taking on the responsibilities was seen as double-edged: both exciting and daunting. Conversely the view of F1 as both the culmination of undergraduate training, but the start of a new process of learning was also held.

The triangulation data from the clinicians supports the perceptions of the new F1s about their readiness to start work, agreeing that more on the job experiences would increase confidence in the areas they were more concerned about. No clear differences in preparedness between medical schools emerged for this theme although the Glasgow clinicians were more critical of the new time contracts for new F1s.

7.5 Commentary on theme from the research team Professors from each medical school

There was general agreement that the themes and issues raised at each medical school were very similar and there appear to be very few differences. Many of the issues raised are already well known i.e. 'you can't do the job until you do the job'. The anticipated and experienced perspectives of the new doctors were generally all very close.

Main differences were expressed via some members of the clinical teams. For example, at times there were different perspectives expressed by surgeons and physicians. These differences may also be reflected in the clinical team's questionnaire. For example on preparedness for anatomy Glasgow medical graduates were rated much lower than Newcastle and Warwick. The differences need to be treated with caution as the sample size was small and it is possible that most or all of the consultants who rated the Glasgow F1s were surgeons.

7.5.1 Transition

There was agreement that overall graduates had similar experiences at the transition stage.

There were some negative comments made by clinicians in Glasgow that were not identified in the results in the other sites. The issues focused on the commitment of new F1s, some of whom seemed to be clock watching or would fail to turn up to work if they couldn't swap a shift. Both John Spencer (JS) and Ed Peile (EP) reported that these issues were also known to occur with both Newcastle and Warwick graduates and were not unique to Glasgow. However, there was general agreement that these issues were infrequent and pertinent to a minor subset of new doctors.

At the first interview medical graduates were all at the end of medical school. There were some minor variations in where they were in the process of moving on to become a doctor which might be worth noting.

The Warwick medical graduates were interviewed during the first week in June 2007. They had completed their exams and were doing a three week period of practice called Advanced Clinical Practice (ACP).

The Glasgow medical graduates had also completed their exams and were in the medical school preparing for shadowing. They were interviewed second, in the third week in June. Shadowing is one week long and starts at the end of the third week in June i.e. after examinations and before graduation.

Newcastle graduates completed their exams in June and were interviewed between completion of exams and the start of the shadowing week which started the third week in July. Newcastle graduates have a 3 week course called 'Preparation for Practice' just before Christmas. The timing of this is not ideal but is fitted in then because of other timetabling requirements

Chapter 8. Factors that impact on preparedness

The previous chapter outlined the expectations of the transition from medical student to doctor of the new graduates, and their reported experiences of that transition when questioned at the end of their first placement. The overall finding was that the mixture of excitement and apprehension was borne out in the experience of that placement. There was a feeling that much of the experience of the transition could only be acquired when actually taking on the role of doctor, and was not something which undergraduate training could prepare them for.

The opinions of the triangulating sample of supervisors, undergraduate tutors and portfolio assessors were broadly positive about the transition to a professional role, but those in Glasgow identified more problems with the professionalism of the new F1s.

Each interview also identified factors which affected the move from student to doctor, both in terms of things which helped or eased the transition, and things which presented problems. Some of these factors are identifiable as 'external', which may be structural, procedural or content-related in undergraduate or postgraduate programmes, others as 'internal', which may be attributed to the personalities, traits or behaviour of the trainees themselves.

8.1 Newcastle graduates

8.1.1 Expectations of Newcastle primary sample

External factors

External factors identified as influencing respondents' anticipation of starting F1 included structural elements of the undergraduate programme and the location of clinical placements, and the teams they worked with on those placements. On a structural level, the experience of having worked in the same trust on clinical placements was regarded as helping the transition from medical graduate to F1 doctor.

> *"I think I'm very lucky to be working in a trust where I have just finished placements and where I have worked over years [in previous employment], in terms of I know who to go to for help, I know where to go to for help and that for me is very reassuring…not gonna be feeling isolated"* (NPS8, first interview, quartile 4)

The numbers of primary sample respondents who had worked in their first placement specialty and/or job as an undergraduate are given in table 8.1.

Table 8.1. Experience prior to the first F1 placement

Previous experience	Yes	No
Trained in this specialty	17	3
Trained in this hospital before	17	3
Shadowed job of first F1 placement	18	2

However, the type and quality of this previous experience would vary with the Base Unit in which they had their placement.

> *"There's an awful lot of variation [of experience] between base units…or even just between individual hospitals"* (NPS66, first interview, quartile 3)

> *"My other friends in other base units did a designated ALS course…but we didn't actually do one in our base unit"* (NPS26, first interview, quartile 4)

More local variation could be at ward or department level, and the people worked with. The extent to which the medical staff (mainly the F1, but also seniors) on their placement allowed or encouraged them to have hands-on experience also contributed to learning opportunities.

> *"[it depended on] which doctor and the like, which F1 was there and whether he was keen on letting me do it, or whether he or she was busy"* (NPS182, first interview, quartile 2)

Patients may also be resistant to examination or treatment by a student, limiting practical learning opportunities:

> *"maybe next year when you introduce yourself as I'm the doctor…people are not so inclined to say, 'No I don't want a student doing this', even though it's exactly the same and it is embarrassing for the patient and it's embarrassing for us because …we're trying to jog our memory how to do the procedure and at the same time trying to maintain their dignity"* (NPS194, first interview, quartile 1)

This helps to explain that some of the differences in reported preparedness could be associated with differences in exposure to clinical settings, learning opportunities and supportive clinical staff.

Internal factors

Internal factors included elements of personality, and the choices made as an undergraduate. One element of personality referred to by respondents was their perception of their learning style, that is the learning experiences and information they engage with and learn from.

> *"If you give me a lecture on medications it's going to just bounce off"* (NPS224, first interview, quartile 1)

> *"In formal teaching we get the scenario, but you don't attach it to a person – maybe some people can do it but I wouldn't be able to do it".* (NPS182, first interview, quartile 2)

There was also personal responsibility for identifying and exploiting learning opportunities, both in the sense of putting themselves forward to gain experience while on placements, but also simply in terms of the elective courses and placements taken.

> *"It's up to me to go back…and just practise them. It's myself who'd kind of go forward and ask the doctor on the ward"* (NPS182, first interview, quartile 2)

> *"I was quite keen to spend a few nights near a weekend…knowing that's what I was going to be doing I wanted to sort of see…"* (NPS24, first interview, quartile 4)

Graduates' perceptions of their own personality contributed to their perceived preparedness, or rather their expectations of *coping* with the transition, and the demands on them. Similar to the relationship with identifying and taking learning opportunities, this may be expressed in their attitude towards asking for help.

> *"I think because I am not frightened to ask for help and I know where to go for help I am not desperately worried about anything in particular"* (NPS8, first interview, quartile 4)

This insight (whether accurate or not) is also used in acknowledgement of potential problems. These personality and learning style preferences may help to explain some of the differences in the reported perceptions of preparedness.

8.1.2 Experience of Newcastle primary sample

External factors

Shadowing

A significant aspect of the transition from student to doctor was the shadowing period at the beginning of Foundation Programme. This is administrated by the Foundation School and involves the new graduates spending a period of time on a ward, shadowing an F1. The period spent varies between Foundation Schools, and in the Northern Deanery is a week.

The new F1 would preferably shadow their predecessor in the specific job they are beginning, but this is not always the case.

Shadowing was generally reported to be very beneficial. It provided an opportunity to find out about F1 tasks in an actual work context and become familiar with both the ward and the hospital.

> *"I had the opportunity to find out how the ward works and I had the opportunity to speak to people who did the job before us"* (NPS146, follow-up, quartile 2)

> *"I thought it [shadowing] was incredibly helpful, yes I thought it was one of the most useful things that we did"* (NPS22, follow-up, quartile 4)

> *"I haven't been in that hospital since I was in third year so it helped me to remind me about where everything was and go through the details of the job"* (NPS66, follow-up, quartile 3)

However, there were some negative experiences of the shadowing week, not because of the shadowing *per se*, but because in a small number of cases there were either no F1s to shadow or there were several graduates shadowing one F1. In one placement the new graduate was the first F1 in that department.

> *"I didn't find it particularly useful personally, just because there were three students shadowing one F1 ...and, like, [the F1] wasn't particularly busy because, like, her team hadn't been on call for ages so she only had about four patients"* (NPS93, follow-up, quartile 3)

> *"I think a couple of them were on holiday, so basically there were two or three F1s between five of us"* (NPS108, follow-up, quartile 3)

> *"The main problem for me was the fact that with this job I do two months [specialty 1] and two months [specialty 2] and it just happens that the doctor I was shadowing was doing the [specialty 1] side of it so I only shadowed [specialty 1] part and I didn't know anything about the [specialty 2] because there was nobody around to shadow F1-wise"* (NPS136, follow-up, quartile 2)

Structural elements

The specific structural and organisational contexts of the F1s' new wards were seen as potentially affecting their transition into the job:

> *"Our rota was ready during shadowing week, you know, so it was all sorted by the time we started and our department has generally been fairly organised and even though we were one F1 down ...we never had to do extra on calls or things like that"* (NPS22, follow-up, quartile 4)

> *"In their perception I am being a bit slow but it would be much more difficult to sleep at night if I had rushed them ...and I think that [Government target] actually gets in the way of things"* (NPS65, follow-up, quartile 3)

F1s' experience was also influenced by team and staffing variations, for example staff shortages, while other F1s referred to problems with their own contract and payroll.

> *"...there's obviously a few teething things ...we had a few problems with it being short staffed because there wasn't as many F1s as there were supposed to be"* (NPS181, follow-up, quartile 2)

> *"...the ward's sort of very under-staffed... they've increased the number of staffing so the doctoring is a bit, is a heck of a lot better in terms of time"* (NPS106, follow-up, quartile 3)

> *"We've had a pay dispute…which has hindered me and I think actually zapped a bit of my enthusiasm…we signed a contract and they are paying us the contract below"* (NPS224, follow-up, quartile 1)

Several F1s mentioned not having all the information they needed to do the job efficiently, such as hospital policies, and being chastised for not knowing certain information.

> *"I think a lot of the sort of systems for things like referrals or like who you, who's appropriate to contact…and things like that we all seem to have got wrong without meaning to. Like there's a system that you go through that we have never heard of…and we get into trouble when we don't follow them...but then no-one's ever told us"* (NPS93, follow-up, quartile 3)

However, trust induction was referred to positively by others, although it is not clear whether the induction would have addressed these issues.

> *"We were provided with quite an extensive kind of induction pack from the Trust. And we knew exactly what to expect from the induction before we started from information from the deanery and what have you"* (NPS18, follow-up, quartile 4)

Support of others

Some F1s reported that they were particularly lucky due to the support they received from the staff that they worked with and being in good teams. Having the opportunity to meet up with other F1s, to share information and to learn from each other was also a help (an incidental benefit of being in a larger trust with several F1s to a department).

> *"There's a couple of the SHOs and registrars that have been really good ...one or two have sort of taken me under their wing."* (NPS224, follow-up, quartile 1)

> *"They have been so keen on teaching and integrating me into the team that I have just found it amazing. It has been such a good rotation and it is due to, not only the doctors but the nursing staff as well"* (NPS136, follow-up, quartile 2)

> *"I think the fact that you are in a group doing it together helps. You spend a lot of time sharing experiences as you go along and that is very helpful, so being with a good group of F1s in your department is really important…I mean we were lucky there were lunchtime meetings in the department ... because you learn a lot from each other."* (NPS22, follow-up, quartile 4)

There were also reports of positive, informal feedback from colleagues, which helped the transition:

> *"Several of [the doctors that we've worked with] have commented on how, at the end of these four months, we have been quite competent and I think they are just quite pleased with me and the other F1s that were on the ward. In terms of the nursing staff, a lot of them have said ...that they hope that they can get some F1s that have been how we have been on the ward"* (NPS26, follow-up, quartile 4)

There were however reports of negative comments or interactions with colleagues, which had affected their confidence and self-esteem. These related for example to a senior making comments based on what an F1 considered to be insufficient knowledge of him/herself; perceived inappropriate expectations; perceived constant criticism early on in the placement; questioning of an F1's actions, and commenting on their performance in front of patients.

> *"... a couple of doctors that I think could have been more understanding of the fact that I was more junior than the others"* (NPS194, follow-up, quartile 1)

> *"I had a meeting with him [my consultant] and the consultant actually said to me 'oh you're not as good as these other two people on my ward and that really upset me"* (NPS139, follow-up, quartile 2)

> *"I think it does affect your self-esteem if people are kind of showing that they feel maybe you ought to be able to do ...I felt like I was constantly being told that I was doing everything wrong"* (NPS9, follow-up, quartile 4)

> *"I know there are a couple of occasions where [a nurse] said things in front of patients, and I felt that was quite unprofessional"* (NPS143, follow-up, quartile 2)

There were also a small number of reports of F1s questioning their own reactions and behaviours affecting their confidence and self-esteem, including comparing themselves unfavourably to colleagues and realising they had made an error.

Others referred to people on their F1 placements who were not interested in supporting their training.

> *"[My] clinical supervisor who's my consultant has hindered me…we have this e-portfolio stuff to do and I went to try and discuss my goals and things like that and he struggled to make the meeting last more than ten minutes… He said 'oh well I've met you now'…he just basically wanted to know 'where do I have to sign for you?'"* (NPS224, follow-up, quartile 1)

There were certain circumstances when the F1s reported feeling that others' expectations were too high.

> *"I think on the whole everyone's been great. I think sometimes nurses maybe expected you to know a little bit more"* (NPS143, follow-up, quartile 2)

> *"Sometimes I've felt that they've expected a bit … In A&E there's quite a lot of pressure to work quickly because of the four hour rule…so the nurses expect or want you to make decisions quickly"* (NPS18, follow-up, quartile 4)

Internal factors

It was evident that personal attributes were perceived by the new F1s to be an influence on their preparedness and transition to the role of doctor. This may be an expected consequence of the reflective practice which new doctors are guided towards.

> *"I'm a bit older than most people that are starting which I think was a bit of an advantage…Just had a bit more experience of being in new situations"* (NPS18, follow-up, quartile 4)

Several F1s commented on their own learning style and how this related to their experience during their first placement. There was particular emphasis on experiential learning and the idea that learning is situated within the context of practice.

> *"...the main thing really is just experience of doing things and then getting feedback, whether that's either positive or negative ... but I think just really having to do the job and just being faced with situations kind of makes you adapt"* (NPS9, follow-up, quartile 4)

> *"...we did have induction but it was just kind of lectures and we just sat through it ...you just end up sitting there thinking I'm not actually going to know until I start because I think I'm quite a practical person"* (NPS139, follow-up, quartile 2)

> *"…you learn about it ...but you are not in a situation so you don't know much about it …until you start working and you know how it works"* (NPS182, follow-up, quartile 2)

Some F1s also referred to personal responsibility for their own learning, for example using their own initiative and seeking learning opportunities.

> *"You can teach the basics and certainly the basic tools are there and then it's up to you to learn how to draw on things"* (NPS106, follow-up, quartile 3)

> *"...I made a point of doing lots of, certainly, venepunctures and cannulations to death in terms of the final year …which I think has put me in good stead and I have not had to learn [them] on the job"* (NPS65, follow-up, quartile 3)

> *"...I think to a certain degree you can actually take on more responsibility if you want to, for example I was quite keen to sort of be managing my own [patients], you know, obviously rather than working let's say with the SHOs constantly supervising me, I sort of manage a few patients, you know ...there is a certain element of choice in life, you know, and it's sort of quite flexible"* (NPS9, follow-up, quartile 4)

Related to this was the attitude of some towards asking for help. Some respondents identified their approach to learning and their attitude towards asking for help as giving advantages in the transition.

> *"I'm not shy of speaking to people ...I'd rather look a bit silly for asking than not asking a question and making a mistake"* (NPS224, follow-up, quartile 1)

> *"If I'm not sure, I'm quite conscientious, I will ask somebody"* (NPS108, follow-up, quartile 3)

> *"Either asking other people or asking the department themselves so you just use your initiative and just find out how things work"* (NPS22, follow-up, quartile 4)

Another indication of reflection identifying areas of preparedness came from the reports from others that they were aware of their own limits and recognised that they were not going to know everything.

> *" ...you get called to see them [acutely ill patients] and then you realise that they are ...and I sort of have known that it's beyond my capacity really and I've called for senior help"* (NPS26, follow-up, quartile 4)

> *"I don't think you can ever feel that you know enough because the more you know the more you realise you don't know"* (NPS194, follow-up, quartile 1)

8.1.3 Newcastle Triangulation

External Factors

External factors identified by the triangulation group were mainly in the form of medical students having insufficient hands-on experience on the wards. This may be partly due to organisational and legal constraints placed upon hospitals.

> *"Real life medicine is not quite the same as the theoretical classroom presentation and, you know, getting your fingers dirty is a very important part of learning…and I think we have probably sanitized the education process too much"* (N Key Manager 7)

There was also a suggestion from one educational supervisor that changes in the F1 role have consequences for the learning context.

> *"Some would argue too much exposure and were given too much responsibility in dealing with that kind of thing but I think the pendulum has swung the other way now. They find themselves on a very steep learning curve when having to communicate things in fairly crisis situations sometimes"* (N Educational Supervisor 7)

Gaining exposure through formal shadowing was seen to be of great benefit in developing skills before starting work.

> *"Shadowing is an enormously helpful process… They should be able to pick up quite a lot. I know there are things that they have never done before but they learn on the ward that they're going to be looking after and that can be enormously helpful."* (N Portfolio assessor 1)

Internal Factors

These respondents recognised that there are qualities of the individual F1 which influence their preparedness: personality, attitudes to learning and different learning styles.

> *"It is difficult to tease out difference between preparation and personality and you inevitably get some people who are a bit shy and, you know, find it difficult to put themselves forward and to some extent they have to learn to assert a little bit more authority"* (N Educational Supervisor 3)

> *"Some of them absolutely take to it like ducks to water others of them sort of struggle, and I suppose that really relates to their learning style and their personality"* (N Undergraduate Tutor 13)

8.1.4 Summary of 'Factors that impact on preparedness' for Newcastle graduates

Factors that helped the transition focused on: support particularly from working in a good team, helpful staff and having the opportunity to meet up with other F1s. Other helpful factors were shadowing and induction. Hindrances focused on a perceived lack of preparedness to do the F1 job particularly focused on prescribing skills, certain teams or individuals being unsupportive and not being 'up to speed' in order to cope effectively with all the associated paperwork and hospital policies involved with the F1 job.

The Newcastle graduates and the triangulation groups in the Northern Deanery identify a number of factors which influence the transition to F1:

- Shadowing
- Prior experience
- Support from colleagues
- Personal inclination

The factors which hinder transition fall within the same general areas.

8.2 Warwick Graduates

8.2.1 Expectations of Warwick primary sample

External factors

Warwick graduates did not explicitly identify any external factors influencing their preparedness and the transition, although as discussed in the previous chapter, the shadowing process was identified as a key part of the transition. The transition was seen as something which could only be experienced, not fully prepared for, and as such not open to direct influence:

> *"I don't believe that up until the point that you're actually doing the job, you are fully prepared for it. Because up until that point it's all theoretical knowledge."* (WPS8, first interview, quartile 2)

> *"I'm prepared for it but there are things you learn on the job and you can't prepare for that."* (WPS17, first interview, quartile 3)

Internal factors

Most final year medical students felt prepared to begin F1, but did raise a few caveats. Some people talked about confidence rather than preparedness. Whilst it may be true that those who feel confident also feel prepared, the confidence aspect also emphasised that the test of practice was still very much ahead of them.

8.2.2 Experience of Warwick primary sample

External factors

All but one medical graduate interviewed in wave 2 stayed within the Coventry and Warwickshire Foundation School (CWFS) and worked in one of the three local NHS trusts. Most had a rotation in the specialty of their first F1 placement and most had trained in the hospital before (see Table 8.2).

Table 8.2: Experience prior to the first F1 placement

Previous experience	Yes	No
Trained in this speciality	14	7
Trained in this hospital before	17	4
Shadowed job of 1st F1 placement	17	4[1]

[1] Of those 4: 2 trained in this speciality in this hospital, 1 had trained in the speciality and one in the hospital

Shadowing

In the West Midlands Foundation School it is mandatory to take part in a three week shadowing period in one of the local NHS trusts shortly before taking up their first F1 placement. As far as respondents could recall, they actually spent between two and three weeks shadowing, with two reporting that it could have been three to four weeks. Overall, the length of the allocated shadowing period itself was thought to be long enough to prepare graduates for the breadth of F1 work:

> *"I don't think you'd want to spend too much longer shadowing. You'd be itching that that would stop and you could do it yourself:"* (WPS4, follow-up, quartile 1)

> *"I guess at the time I would have said 'no I need more time', but looking back I guess it was long enough."* (WPS23, follow-up, quartile 4)

> *"I think you probably need to do two or three weeks, definitively, because you've got your day-to-day stuff, and then the on-call, which I shadowed as well. Depending on who you are shadowing, they are probably only going to be on call perhaps once in*

> *a period of three weeks. So if you did it just for a week, you'd probably missed out on quite a bit. I don't think you need to go in all day every day."* (WPS6, follow-up, quartile 3)

The feeling expressed in the first interviews that the role of doctor could not be completely prepared for was echoed in the follow-up interviews. Many F1s thought that you could not be fully prepared until you had actually started the job. However, shadowing was seen as helping and it was a fast learning experience.

> *"I don't think you can be until you do it, ultimately. I don't think it is something that anything is going to prepare you to do until you actually do the job because it is very different shadowing someone"* (WPS10, follow-up, quartile 2)

> *"there have been things that have been a bit difficult but on the whole yes I think so, it's a bit of a learning curve but I had shadowed the job before I started so that helped."* (WPS14, follow-up, quartile 3)

There was a strong sense that the shadowing period was useful as it gave the medical graduates a chance to familiarise themselves with the new work environment in terms of getting to know the staff, and the tacit knowledge involved in how the system works and the requirements of the job.

> *"I can't express how valuable I found that. On the first day I knew the staff, I had met them, the nurses and the consultant. And I knew how to do the blood forms, the TTOs, book MRIs. I had an understanding how things worked. I didn't have the first few days of floundering or two weeks of asking how do you do this, how do you that. It was a smooth transition":* (WPS21, follow-up, quartile 1)

> *"What was gained was invaluable in starting the job. I learned just tips from the previous house officer, which medications are required, and overall a nice little guidance, a framework how to do the job."* (WPS17, follow-up, quartile 3)

> *"That was really useful. Just how things work, the on call, what you are expected to do and where you are supposed to be."* (WPS6, follow-up, quartile 3)

Some felt however that the shadowing period was not optimal, either in length or content. Some reported generally low activity levels during the shadowing period, or that the F1 they should have been shadowing was absent during the shadowing period. A minority had not been able to shadow the person whose job they were taking on. There was still a feeling among this group though that the shadowing period was useful in some respect, for example, getting to know how the ward works or the house officers' role when patients arrive. Others emphasised that it gave them an opportunity to brush up their practical skills, adjust to the change in responsibilities, helped to boost their confidence or reduce anxiety levels.

Structural elements

The organisation of placements and the availability of practical experience in placements was a structural element referred to by respondents. There were concerns that they had missed out on some specialties while having repeat exposure to others. One person recalled that he or she needed to compensate for the lack of exposure to practical procedures by attending other departments where there were opportunities to get many of the required competences signed off.

> *"So I'd been allocated a respiratory block, I haven't really experienced that; I've had no GI medicines. People have had ophthalmology; I've not had anything like that. I've not had any neuro. I've had two anaesthetics blocks, though."* (WPS13, follow-up, quartile 3)

> *"But I think every student missed one, so if you got cardiology you didn't get respiratory, and things like that no-one got a full set of the specialities just because you couldn't fit it all in."* (WPS17, follow-up, quartile 3)

Having trained in the hospital before was also a facilitating factor, either in combination with other factors, or in itself.

> *"I suppose being in the same hospital has probably helped."* (WPS1, follow-up, quartile 1)

> *"I think the fact that it was at [name of the hospital] which I spent time at before. The staff on the wards were really helpful. I had good SHOs there."* (WPS18, follow-up, quartile 1)

For another person it was the combination of having trained in the hospital before and the shadowing itself that allowed him or her to get to know the hospital and people in other departments for referral of patients.

Staffing levels and available support were also identified as potential hindrances to the transition period. Lack of support occurred where wards were short staffed (such as having no SHO), seniors were not nearby but at the end of the telephone, or during on call. In one instance, the SHO had just left before the F1 started the first placement. As a result the workload was heavier and the learning curve steeper. However, the F1 had risen to the challenge, and what was initially seen as a hindrance was now considered to be a 'blessing in disguise' as he or she had become more efficient and confident.

Others described situations where they had experienced a lack of information on what was supposed to be their role or how things were done, partly because it did not occur during the shadowing period or had simply not been mentioned.

> *"There were a couple of days where bloods didn't get ordered and things like that, where we did not realise that we had to do [it] and that was a bit of a stress a couple of mornings, but it was ok."* (WPS1, follow-up, quartile 1)

> *"Something that I brought up when we started was that there wasn't enough clear information about what our responsibilities are when we are on call. … They have added that to the induction pack."* (WPS18, follow-up, quartile 1)

Inductions and information packs were perceived to be not as useful as they could have been because of the way they were presented, the type of information they contained, and the time at which information packs were handed out.

> *"I think the induction was the most important thing and it was poor here"* (WPS19, follow-up, quartile 4)

> *"That was just a half-day on 31st July. It wasn't very helpful at all. …I think it was fire training, and things like that, which, okay we needed to know, but they did not go through what it entailed when we were on call and where you go about finding an on call rota, and anything useful, like what time the path lab is open"* (WPS6, follow-up, quartile 3)

One hospital offered a web-based induction prior to starting the F1 placement, but the respondent perceived the navigation to be cumbersome and documents to be lengthy. Thus people did not read it to the extent required – and probably missed out on relevant information.

However, there were a few positive comments on the information packs. One person mentioned that the information packs were helpful as they contained information on how the on calls worked and 'how to go about a day' and another one in a different hospital recalled having received information on the duties of an F1 doctor.

Support of others

There was a lot of praise for members of their team for offering guidance to the new F1s, or easing pressure on them.

> *"Everyone has been really helpful, especially when I needed to ask for help"* (WPS10, follow-up, quartile 2)

> *"I would say a number of people helped me. My team, where I am working now, they understand that this is my first job and that is not only the medical profession, the nursing staff as well, and other professionals"* (WPS7, follow-up, quartile 2)

In a few instances more senior medical staff were thought to have been particularly helpful:

> *"I think the staff above me were pretty good, so the SHOs are obviously aware of what you're going through, so they pick up the slack or point you in the right direction a lot of the time and will come and tell you if you're supposed to be doing things differently. … It was quite slick and easy."* (WPS4, follow-up, quartile 1)

As part of the interview the question was raised with all respondents whether they had experienced situations that affected their confidence and self esteem. A few recalled isolated negative incidents or occasions:

> *"There was just one or two occasions where one of the locums made a comment, when I had just started, how come you can't put a venflon in, which was very dismissive about my ability and did not particularly help. But generally everyone was very supportive and I felt my biggest critic was myself."* (WPS9, follow-up, quartile 2)

> *"It's mainly consultants, when you are scribbling in their notes, they'll be double checking what you're writing. I'll just think they want to make sure everything is written down properly, so don't think it is a bad thing, but I just sometimes think … it does knock your confidence."* (WPS24, follow-up, quartile 4)

On the other hand, some respondents reported that their self confidence had increased following positive feedback they had received as part of an assessment, although one person made a point that more feedback would have been helpful:

> *"I could have done with a bit more feedback to say whether I was good or bad. You are largely left on your own trying to develop your own clinical practice."* (WPS16, follow-up, quartile 3)

Teams generally understood the limitations of new F1s and facilitated their adjustment to the role.

> *"My particular ward they were a great team, they all understood and made allowances for that until I improve."* (WPS9, follow-up, quartile 2)

> *"I think initially some of the staff, I think, they anticipated us to have greater skills, and then later realised we were on our first job. I think that was just the first few days really."* (WPS7, follow-up, quartile 2)

> *"I've had no complaints. ... I've been quite happy to say, I'm sorry, I'm the House Officer. I'm not able to do that. And people have said, oh that's fair enough."* (WPS11, follow-up, quartile 2)

A few respondents did report expectations being lower or higher than anticipated, but these do not seem to have presented great problems.

> *"It started as though they expected the lowest of the lowest and once their confidence in me grew, I was given more responsibilities."* (WPS19, follow-up, quartile 4)

A few others saw themselves, on occasions, confronted with higher expectations than they anticipated.

> *"My consultant expected me to be able to do a lot more than a lot of other House Officers, which, at the beginning, was very scary and very frustrating. But I think I've done better as a result, because I've achieved more as I've had more responsibility."* (WPS15, follow-up, quartile 3)

There were also instances where F1s had been asked to do jobs they thought were not appropriate for their role, such as discharging patients, doing an evening clinic or doing ward rounds on their own.

> *"We were asked to do things that were unreasonable."* (WPS18, follow-up, quartile 1)

> *"I think at times she had higher expectations. When she was in the clinic one day, she told me to do a ward round on my own, and this was only the first week when I started. I was told when I was in training that at your stage, you're not expected to do a ward round on your own."* (WPS24, follow-up, quartile 4)

Internal factors

The lack of exposure to specialties enabled by structural factors could be compensated by others making up for the lack of exposure by arranging their own experience.

> *"Sometimes you don't do a rotation in whatever, you know ophthalmology but I spent some time with an ophthalmologist anyway so you kind of, as long as you're proactive about it then you can do what you want to anyway, and don't leave it to the last minute."* (WPS1, follow-up, quartile 1)

F1s did not mention other factors related to personality impacting on preparedness although their experience and age were mentioned in other contexts and will be referred to in subsequent chapters.

8.2.3 Warwick Triangulation

External factors

The triangulation group identified four key external factors which helped F1s to be prepared: shadowing; standardised assessment methods; portfolio structure; and availability of web sites.

> *"I think the shadowing week is a huge advantage in this medical school, not many medical schools do it."* (W Portfolio Assessors' focus group)

> *"They all have the same [F1 assessment] methodologies applied to them across the country now which is good."* (W Portfolio Assessors' focus group)

> *This [portfolio] is the goal, what you're going to be judged against. So they've got the carrot and the stick."* (W Portfolio Assessors' focus group)

> *"I think it's improving because a number have said that the web-site now has a portal for medical final year medical students as well as F1 doctors… They have to look at it don't they and most of them don't."* (W Portfolio Assessors' focus group)

Generally the shadowing processes across all Trusts provided a good indication of what to expect when F1s started work and this was feeding through into F1s and F2s who were local graduates. Again the point is made that the reality of the job cannot be simulated.

> *"I think it is a very steep learning curve. They are suddenly having to confront patients and relatives and staff in a professional way which they have not had to do as final year medical students… Actually I think it is very difficult to simulate them really as medical final year medical students. That is why I think the shadowing period is so important. That is the only time when you are going to see what interaction an F1 has."* (W Key Manager 5)

> *"…basically they know what they are in for and they know what procedures and they see the house officers and what's happening to them, what their work load is."* (W Undergraduate Tutor 3)

> *"Some feedback from our SpR who had worked at other hospitals in the midlands said that all of the doctors in training here are really good. I think that reflects the*

> *fact that the F1s are good and our current F2s and SHOs tend to be local and coming through that system."* (W Undergraduate Tutor 1)

The ability to work in a team was attributed by some respondents to the way training was organised.

> *"They do feel like appendages rather than integrated into the team however much you try. It may be a feature of how long they are with us. It may be a feature of how they obviously have to have their formal full training sessions."* (W Undergraduate Tutor 4)

Internal factors

Most respondents thought that because Warwick final year medical students were more mature than at other medical schools, being all graduate entry, this gave them an advantage in terms of being quicker to learn and being more enthusiastic. It was also suggested that maturity could be harnessed to fast track some people who appeared to be frustrated at the pace of undergraduate teaching. However, one respondent did express concern that over the age of 35 learning new things was more difficult, although s/he did not have any good evidence for this.

> *"In general they know what they are in for and they have a very positive outlook and they're all really keen to go."* (W Undergraduate Tutor 7)

> *"I think they feel a little bit frustrated that they are really having to learn for the first time when they come to the job. Now somehow if we could use that experience and maturity so that they can hit the ground running, then I think we've got some people who could really be quite fast tracked."* (W Undergraduate Tutor 4)

It was thought that the ability to work in multi-professional teams seemed to reflect differences between individuals rather than a general lack of skill and length of placements.

> *"I think as well that they don't work as part of the team but we have just had one who was excellent so it's not all of them."* (W Undergraduate Tutor 6)

Some respondents thought that attitudes and relationships between F1s could be problematic.

> *"I think they see themselves more in competition with each other."* (W Portfolio assessors' focus group)

There was the feeling from some respondents that the unpreparedness of some individuals is down to a fundamental inaptitude for medicine which the medical school should be better equipped to deal with. Respondents thought that weaker final year medical students could be identified all the way through the undergraduate stage and this continued into F1 posts and was identifiable through the portfolio. Possible reasons suggested for weakness were lack of focus, organisation and time management.

> *"So they're thrown in at the deep end into a system which isn't particularly supportive. But I think in terms of practically what we could do, if we come back to the question, is there anything more that the medical school could do, perhaps at ACP an hour or so with them you know just pre-warning them?"* (W portfolio assessors' focus group)

> *"… something will have happened to a good student who has applied themselves and is a promising young doctor, that knocks them off their perch at some stage close to the exams and they can't pull themselves together in time. … But yes you're right there are those that display the same pattern [struggle] all the way through."* (W portfolio assessors' focus group)

To address the needs of weaker F1s it was suggested that final year medical students and doctors who struggle should receive more career guidance, although individual insight was often lacking.

> *"you will have picked that up in year 1 and yet here we still are, and we have had individuals who were known to have struggled through medical school and received lots of special help… and it's actually quite difficult to do what we all feel is best for that individual very strongly. I mean you don't make that decision lightly to say to somebody this isn't the career for you"* (W portfolio assessors' focus group)

8.2.4 Summary of 'Factors that impact on preparedness' for Warwick graduates

Shadowing was found to be very helpful and reduced some of this apprehension. Factors that helped the transition were the shadowing period, support from the team and having trained in that hospital previously. Shadowing enabled the medical graduates to become familiar with the new environment and the requirements of the job and support from staff helped them who helped by pointing them in the right direction and by offering guidance. Having worked in that hospital previously in terms of knowing the hospital lay out and systems and also helped the transition.

Hindrances focused on lack of support from staff that were busy or absent, lack of information particularly with regard to their role and how things were to be done. Some also referred to a lack of feedback on their performance and some received poor information packs.

8.3 Glasgow Graduates

8.3.1 Expectations of Glasgow primary sample

External factors

The respondents commonly mentioned their undergraduate clinical attachment experience as being important in helping them to feel prepared. How much this helped was dependent on the particular attachment.

> *"It also very much depends on what hospital you have been in, your placement, I think it's very difficult for, especially a 4th year student to go into a ward and to know anybody and to become acquainted with people and I think it would be better if they attached someone to a ward for five weeks and that they had to go into the ward every day at 9 o'clock and they saw what the JHOs did rather than us just being flies on the wall type thing, if we got some more hands on experience that we had to do rather than oh we can turn up at 9 o'clock for this clinic and then we can have the rest of the day off if we fancy"* (GPS6, first interview, quartile 3).

Several of the respondents mentioned the acute care days that were provided by the medical school as being positive in helping them to be prepared for their FY1 post.

> *"The only thing was the last year and a half at Glasgow they have done a lot of the acute care days and they have been amazing, they have been absolutely fantastic and I think that is something I think they should expand and keep doing more of because every single one that I've been to has been fabulous, you have come out saying yes, I feel that I can do that. They did respiratory acute care, cardiology, they did blood transfusion day and I came out of them and I know my friends did as well thinking yes I think I could deal with that a bit more."* (GPS14, first interview, quartile 1)

Others had undertaken additional work that wasn't part of the core curriculum that helped with their preparation.

> *"I was lucky enough to do an SSM like a specialist study module in shadowing which is offered in 5th year but not everyone gets an opportunity to do that, I was quite lucky that it came up and I had a go at that. So that was quite useful we could do with a bit more."* (GPS4 first interview, quartile 1)

There was an expectation among the sample that the shadowing period (that they were just about to undertake) would help to prepare them.

> *"I think after the shadowing I'll have a better idea about the expectations"* (GPS2, first interview, quartile 4).

Internal factors

The respondents agreed that personal characteristics of F1s and their previous clinical placements would have the biggest impact on preparedness.

> *"I think it depends very much on the person, how well someone will be prepared to be a JHO or not and it also very much depends on what hospital you have been in, your placement"* (GPS6, first interview, quartile 3)

8.3.2 Experience of Glasgow primary sample

External factors

Factors which contributed to feeling unprepared included being in situations (especially at night or on-call) where the F1 responsibilities were higher and less support might be forthcoming. Moving around from ward to ward or department to department could also lead

to feelings of unpreparedness because different units operate so differently. For example, one F1 reported that they had just started a new surgical placement in a new hospital and it felt like starting all over again from scratch – not knowing where anything was, not knowing what was going on (GPS18, follow-up, quartile 4). This perception was reinforced by other F1s who noted that differences between the way medicine and surgery operate could be quite disorientating at first. Some respondents working in more specialised fields reported feeling slightly anxious as a result (one in Paediatrics and the other in Neurology).

The numbers of Glasgow graduates who had shadowed their F1 posts and specialties are given in table 8.3.

Table 8.3. Experience prior to the first F1 placement (not all respondents were asked this question)

Previous experience	Yes	No
Trained in this specialty	7	2
Trained in this hospital before	3	6
Shadowed job of first F1 placement	6	3

Shadowing

Formal induction was helpful as it introduced them to the hospital system.

> *"The induction day was quite good , it was to know how the labs and the kind of practical things , shadowing helped and the fact that we were shown there should be plans, like ward plans for everybody so there was a good handover…that was a really big help and that helped a lot"* (GPS2, follow-up, quartile 4)

Some F1s who commented on how the PBL training had given them the tools to find his/her way around and what needed to be done.

> *"While I wasn't accustomed to the hospital, the way things were done and that sort of thing. I managed to cope and coped fine and get the work done. Which I think is probably a reflection upon the Glasgow course in the sense that you know it was a totally alien environment for me but I could use the tools [from PBL]"* (GPS13, follow-up, quartile 2)

The large majority of FY1s commented that the shadowing period had been long enough and helpful to understand the layout of the hospital and paperwork.

> *"Helpful to get a layout of the hospital and a few ideas about basic things like blood bottles to use and what X-ray cards to use"* (GPS11, follow-up, quartile 1)
>
> *"Was able to get my bearings around the hospital"* (G5, follow-up, quartile 4)
>
> *"…to familiarise myself with the system and how everything runs"* (GPS3, follow-up, quartile 2)

However not all respondents saw the implementation of shadowing positively.

> *"[Shadowing] it was right in the middle of the summer holidays, a week before you actually start work or like just at the end of exams would have been more helpful… The lack of preparation for work that you spend towards the end of fifth year, because finals are right at the end"* (GPS4, follow-up, quartile 1)

Support of others

The support of others also constituted an external factor in aiding the transition. This included support both at work and at home:

> *"The staff are very friendly and very open they let you ask questions and things so they were particularly helpful. The nursing staff up to the consultants they are all very good and I think very patient with us in the first couple of weeks "* (GPS4, follow-up, quartile 1)

> *"I've got a lot of support from my husband and my sons. The family support can make a big difference just having someone there to have a wee moan at or a wee oh its terrible"* (GPS19, follow-up interview, quartile 1)

> *"Sometimes, well, I do think there's been problems when I've not really know the system, particularly when my senior colleagues have just moved straight from a different hospital and different health board possibly. If we use different protocols, different you know systems of request for example they might request a test which usually go to biochemistry in our last hospital but in the hospital go to microbiology "* (GPS7, follow-up, quartile 4)

> *"Some of the senior staff just assumed that you go into the job and know how to do everything, make referral letters, just know the system and kind of none medical related things that we would not have know."* (GPS10, follow-up, quartile 1)

Internal factors

The respondents do not all feel prepared to the same extent and some might feel more prepared in certain areas, others in different areas. This is probably due to individual personalities and abilities. The breadth of responses reported also spans all quartiles, indicating that quartile score cannot be regarded as a predictor of preparedness.

The interviews show that additional experience over and above that of one's peers could help in feeling prepared. For example, one respondent had decided to do a month over the summer with a radiologist in the hospital where they were going to be working because they were interested in radiology and this respondent reported that it had definitely helped:

> *"And I learned quite a lot there about what to write and what not to write and the importance of writing indications down on x-rays. And I've never been pulled up on that whereas I know a few of my colleagues have been."* (GPS17, follow-up, quartile 1)

Another had worked as a phlebotomist previously and so experienced no problems in taking blood.

Expectations of others

Generally the F1s reported that expectations of them were about right. Some F1s reported extremes where they were virtually ignored to expecting them to know everything straight away.

> *"I think they were appropriate to be honest…But I don't think the expectations were"* (GPS5, follow-up, quartile 4)

> *"It depends on the individual unfortunately. Some people had very low expectations…and would automatically go over your head for anything which is very frustrating…and there were some other individuals who did feel that you should be able to do it straight off"* (GPS1, follow-up, quartile 2)

8.3.3 Glasgow Triangulation

External factors

It was acknowledged by the respondents that the quality of clinical attachments influenced the preparedness of the FY1s and that this interacted with personal characteristics.

> *"The answer to this thing is, you know, how good is the medical school, motivated students and motivated consultants makes them a very good junior F1doctor, if either one of those are missing or both are missing, there are huge problems…it's very difficult, you know, if you are unmotivated and you go to a unit where they are not particularly interested in you and so it feeds your lack of motivation."* (G Undergraduate Tutor 5)

These respondents confirmed that shadowing had a positive influence on preparedness.

> *"I think they are reasonably prepared. The experience on their blocks and the shadowing week helps with that."* (G Undergraduate Tutor 10)

Internal factors

There was a view that preparedness was heavily influenced by personality factors.

> *"I mean the FY1s they can be very variable. It really depends on very much their own personality and you know, I find, personally I find the ones who are kind of well organised, they are much better prepared in carrying out their duties and everything. Now we do have some FY1s who we can rely on to almost, almost act up like an SHO Foundation year"* (G Educational Supervisor 2).

8.3.4 Summary of 'Factors that impact on preparedness' for Glasgow graduates

The main factors that helped with the transition were induction and shadowing, supportive staff within the team, peer and family support, and previous experience of working in the hospital. There was a suggestion that the PBL training had provided the tools to ease the transition to a new environment.

The main hindrance came from not knowing the hospital system, with some reports of poor induction and shadowing experience, and lack of support from some staff.

8.4 'Factors that impact on preparedness': common themes and differences between sites

Preparedness, and the transition to F1, were affected by a number of factors. These included both external factors, including undergraduate clinical placements, shadowing, inductions and the support of others, both in the workplace and at home, and internal factors such as the graduate's personality, learning style and their engagement in seeking out learning opportunities. All factors discussed are reported to help and hinder the transition.

8.5 Commentary on theme from the research team Professors from each medical school

Familiarity with and preparation in the same clinical placement where students are going to undertake their first FY1 placement will help but individual enthusiasm and personality factors are clearly important. Supervisors comment on good F1s being enthusiastic and prepared to 'go the extra mile' rather than being knowledgeable.

Chapter 9. The role of the F1 and other team members

For F1s to adapt successfully to the workplace, it is desirable that they should understand their role, including where their responsibilities end and those of other team members begin and/or overlap. This also refers to their knowledge of team-working and their ability to work as part of a team.

9.1 Newcastle Graduates

9.1.1 Expectations of Newcastle Primary Sample

Knowledge of own role

The extent to which the new graduates understood their future role and responsibilities as an F1 varied. Several felt that they had obtained a good understanding, for example through working with current F1s during their training, whilst also acknowledging that they would learn more 'on the job'.

> *"I think we have to spend quite a lot of time on the wards, shadowing current F1s and things, so that we have got a fair idea of what the job involves and what is expected… the kind of work that we will be doing"* (NPS9, first interview, quartile 4)

> *"I have a fair idea of what will be expected of us, but I think there will be a few surprises"* (NPS194, first interview, quartile 1)

Knowledge of others' roles

Perceptions of their understanding of the roles and responsibilities of their colleagues varied, but several felt they had a good understanding. Time spent on the ward had also helped students gain an understanding of how they fitted into ward teams.

> *"I think ... as a student, you do learn about the roles of other members of the team"* (NPS26, first interview, quartile 4)

> *"I think a big deal is made of the [multi-disciplinary team] and rightly so… it's just helpful to you to know what everyone else's roles are, so you are not stepping on any toes, and also you need to know what you're looking for if you need any help for anything"* (NPS139, first interview, quartile 2)

While working in a multi-disciplinary team was not seen as problematic, there was some uncertainty about the medical hierarchy, and where the F1 role fits with other junior doctors.

> *"I think it's quite clear with the consultant and even the registrar but then [with SHOs], I don't really get who does what … I think it depends where you are as well, on which ward…It's just where your role ends and theirs kind of begins or if you kind of do the same job but they know a bit more…"* (NPS93, first interview, quartile 3)

> *"you know no-one's given me a piece of paper and said these are the roles you have to do, but you spend enough time in hospital …in your clinical years [so] you kind of appreciate what you do … I think I've got a reasonable understanding..."* (NPS143, first interview, quartile 2)

There was awareness that being a junior doctor would mean identifying sources of help and support from seniors and other members of a multi-disciplinary team, and they felt confident about doing so.

> *"I feel that I've been prepared well, that if I do go into a situation I know who to ask for help. I think that's going to be a big part of my first rotation. .. And I think that's been exercised a lot when I was a medical student"* (NPS139, first interview, quartile 2)

9.1.2 Experience of Newcastle Primary Sample

Knowledge of own role

The majority of the new F1s were clear about their own role and areas of responsibility. Induction and shadowing were reported to be helpful in acquiring this knowledge, and understanding became clearer over the course of the first placement.

> *"Yes because we had an induction and they told us what they expected an F1 to be doing, what was our role in the chain and what should be done and when to ask for more help"* (NPS182, follow-up, quartile 2)

> *"…during the induction they were quite keen to make sure we knew exactly what was expected of us and what wasn't expected of us and so it's not been so bad…"* (NPS18, follow-up, quartile 4)

Where F1s lacked clarity about their role and responsibilities, it was related to organisational factors: two placements had an F1 for only the first time, which led to a blurring of responsibilities between F1 and F2 roles and duties on the ward. This was particularly evident at the end of shifts, at busy times and during periods of reduced staffing levels.

> *"Every consultant in this department had a different idea of what my role was and every nurse and every doctor had a different idea of what my role was [because having an F1 was new]"* (NPS194, follow-up, quartile 1)

> *"…a lot of the SHOs will disappear off at five and I'm still there at half six doing jobs that potentially they should have been doing …it's not so clearly defined and some rely on you a lot to do their stuff and others don't"* (NPS224, follow-up, quartile 1)

Other ward team members' understanding of the F1 role and the level of support provided also affected clarity.

> *"I mean it's been alright really because we're kind of just, the ward team have helped us along so we've kind of just slotted in really"* (NPS24, follow-up, quartile 4)

> *"I think it is quite clear. I think that if there was anything I wasn't comfortable with I know that I've got sort of senior people that I can say I'm not comfortable with doing that and I think that actually it's sort of outside of my role and it requires more sort of senior assistance"* (NPS26, follow-up, quartile 4)

Knowledge of others' roles

Most respondents were clear about the role and responsibilities of other team members and indicated that this had developed during their placement. However one new F1 commented that they had gained knowledge of the roles in their final year of medical school and one specifically commented about learning through shadowing.

> *"I think it's just something we've picked up as well. I think at the beginning like, you'd do a lot of things yourself and the other people, like the nurses, would be like oh thanks for doing that [laughs] and you're like oh, I thought that was my job…"* (NPS93, follow-up, quartile 3)

> *"The first couple of weeks I wasn't really sure but it's all just, it's all kind of panning out now and everything is just quite simple"* (NPS108, follow-up, quartile 3)

While allied health professionals had fairly strictly defined roles, the role of nurses was sometimes less clear due to the variation in levels of qualified skills and responsibilities of different nursing grades.

> *"I think with people like physiotherapists and pharmacists and occupational therapists it's been quite clear what their remit is. But with nurses … it's been a bit more difficult to know what you can ask the nurses to do and what you are expected to do yourself... some of the nurses take bloods and some of them cannulate…and*

> *it's difficult to know when you're expected to do it or when you can say to the nurse, 'Can you do this'"* (NPS18, follow-up, quartile 4)

> *"You soon learn when you are working with people what exactly they are responsible for and what they are not able to do, you know. Some nurses can take blood other nurses cannot. Other nurses can do ECGs and other nurses cannot. So it is just, yeah I have picked that up as time has gone along"* (NPS136, follow-up, quartile 2)

Where new F1s were unclear about their role this was frequently related to administrative and paperwork tasks.

> *"I think the mistake I probably made was trying to do too much myself and maybe almost take over everyone else's role … little things like organising notes and files just because I think for clarity of my own head I like to have things in a certain order and I'd get told off because the ward clerk would be doing that"* (NPS143, follow-up, quartile 2)

> *"There have been one or two occasions when my consultant has said, "you don't need to do that, the ward clerk will do that", so I think actually there are times when I've ended up doing bits of other people's jobs which I probably should not have been doing because I have enough to do of my own"* (NPS22, follow-up, quartile 4)

During their first placement new F1s had been gaining knowledge of where they fitted into the team and how to work with others within the team. Positive experiences of team working had involved clear communication and clarity of roles.

> *"We didn't have too many problems again because the ward teams have worked together here for quite a while, they already know sort of what their areas are, so there's not too much conflict about who does what or, you know, what needs doing...people have been quite good at saying what they want us to do if we haven't done it"* (NPS24, follow-up, quartile 4)

Reported challenges of working in a team included being asked to make referrals to other team members when unclear of the reason, sharing workload within the team, perceived delays in the treatment of patients, blurring of roles within the team and communication over patient management.

> *" ...if other people are less organised than you are, or work slower, then you end up doing actually a greater share of the work and that is one of the problems I have had"* (NPS22, follow-up, quartile 4)

> *"I think it's limited by the fact that there are lots and lots of people involved in the team at many different levels and there are often delays ...and that can become quite frustrating"* (NPS26, follow-up, quartile 4)

> *"...some of the other doctors told me I shouldn't be doing things like taking a temperature or taking a cannula out ...because that's the nurses' job. But the nurses do a lot of our jobs like cannulating and taking blood and depending on who is the more busy ...so that caused some tension between some of the other members of the team"* (NPS194, follow-up, quartile 1)

9.1.3 Newcastle Triangulation

Many respondents felt that F1s did understand their role.

> *"They seem to understand the roles you know, the sort of professional aspect of being a doctor. They're on call and the ability to act as a professional."* (N Educational Supervisor 14)

> *"I think [F1s'] area of responsibility is still fairly well defined and my impression is that people understand that."* (N Portfolio Assessor 1)

Others though felt that new F1s did not fully grasp their responsibilities, and that longer and more integrated shadowing periods would help this:

> *"From speaking to the F1s and it's not something I have directly observed they don't really quite seem to fully understand what a doctor does when they start work. So I think the biggest thing that could be done to address that was if they had a longer shadowing period"* (N Undergraduate Tutor 10)

> *"Not passively observing...but being part of the ward round and part of the team on the ward. But I think you need a period of time on a ward to do that, being parachuted in for a week and then gone, that is not long enough, I think you need a good 3 or 4 weeks in order to feel comfortable being part of the team and to be able to play a role."* (N Undergraduate Tutor 2)

9.1.4 Summary of 'Knowledge of roles' for Newcastle graduates

The medical graduates were mixed in their views about whether they understood the role and responsibilities of an F1; some feeling they had a good grasp of the role, others feeling they would need to learn more about this on the job. Time spent on wards, in undergraduate placements and in particular shadowing, helped improved this understanding.

After the first four months of being an F1 the majority reported they did feel clear about their own role and area of responsibility. Clarity of role was influenced by the level of support provided by the team and their prior experience and understanding of the F1 role. There was some uncertainty about nurse roles in practical procedures, reflecting the different skills and responsibilities of different nurse grades. The first placement developed knowledge of the F1 role, and provided further understanding of where they fitted into the team and how to work within the team.

Clinical views from the triangulation data indicated mixed views on how much the new F1s understood their role and area of responsibility. Some felt this would be better understood if they experienced a longer shadowing period, more integrated into the ward team, prior to starting work.

9.2 Warwick Graduates

9.2.1 Expectations of Warwick primary sample

Knowledge of own role

Most of the new graduates in the first interview were unclear on exactly what the role of an F1 would involve.

> *"I don't feel I've got quite a full handle on who does what and what I can [do] you know. I am quite worried actually, that what I can say "Is it alright if you do this?" knowing who does that and knowing what I should do."* (WPS9, first interview, quartile 2)

> *"I was a bit at a loss as to what my responsibilities would be, whether I sign death certificates or whether I'm too junior to do that, or what I can do and what I can't do."* (WPS6, first interview, quartile 3)

> *"[knowing] when it's appropriate to step in and take action as an F1: when do I need to change a certain schedule for medication, when do I need to change the Warfarin dose, or whatever, and is it appropriate for me to do that, or should someone else?"* (WPS12, first interview, quartile 2)

However, they also felt that undergraduate clinical placements prepared them for their role as an F1, and that shadowing would enable them to be clearer about their role. Written information on the role and responsibilities was also found to be useful.

> *"I think you really get to see what everyone's role is in the team, and what your role will be when you become F1 doctors because you're with them every day and there are only two final year medical students. You feel like that you're part of that team, starting to understand what a House Officer does."* (WPS23, first interview, quartile 4)

> *"I think by the end of these two weeks shadowing I will know fully. At the moment I'm a little bit unsure, but from my shadowing today, I felt that I'm kind of starting to understand what a House Officer does."* (WPS19, first interview, quartile 4)

> *"I was originally [concerned] but yesterday I got a nice pack detailing the roles and responsibilities."* (WPS3, first interview, quartile 1)

Knowledge of others' roles

References to others' roles referred largely to the question of working within a team. Several respondents felt prepared for working in specific teams due to spending time as a student in the hospital in which they were going to work, although there was some recognition that entering a well-established team might not necessarily be straightforward.

> *"I feel quite comfortable about going onto the ward because I spent quite a few months in my new hospital."* (WPS18, first interview, quartile 1)

> *"I will be coming in for four months into a ward where you have had people working there maybe for ten years or more, so they know the ward."* (WPS21, first interview, quartile 4)

Respondents anticipated support from colleagues, but recognised they may not always be available:

> *"I think it is because there's only one house officer and it's a very busy ward and you often get very sick patients on there. But, at the same time, I think there are good support networks and the consultants are supposed to be quite supportive. It's not something I'm overly anxious about."* (WPS18, first interview, quartile 1)

> *"But on-call, there's not very many people to go to if you're not sure."* (WPS23, first interview, quartile 4)

> *"The house officer is around and they can be easier to get on with as they are more your level, but often they're the busiest ones ... [but] the registrars are often very busy and in some way closer to the consultants, where the house officers and senior house officers are based on the wards more."* (WPS11, first interview, quartile 2)

Working in small groups as an undergraduate was seen to develop transferable team working skills, while clinical placements developed knowledge of the roles within multi-disciplinary teams.

> *"We acquire a lot throughout by working in groups of 2 or 3 and become part of a clinical team, so I think you learn those skills as you go along."* (WPS17, first interview, quartile 3)

> *"The medical school definitely prepares you in that respect and gives you a good understanding of the teams you're going to be working with."* (WPS18, first interview, quartile 1)

> *"With clinical placements we are encouraged to attend multi-disciplinary team meetings where we actually see the roles of the radiographer and surgeon and the nurses."* (WPS15, first interview, quartile 3)

Knowledge of teams developed prior to F1 gave some respondents the confidence to ask questions when necessary. One realised during shadowing that as F1s they could challenge opinions of others, including consultants.

> *"I've actually worked with them before so I actually know the consultants and I know some of the team already so I feel quite capable to ask questions if I feel a bit confused or a bit lost."* (WPS14, first interview, quartile 3)

> *"on the ward round I was quite surprised that the house officer challenged the consultant's opinion of which drug to use"* (WPS1, first interview, quartile 1)

9.2.2 Experience of Warwick primary sample

Knowledge of own role

Having completed the shadowing period, most respondents thought that they were clear about their role as an F1. One person reported that he or she quickly established a role on the ward and another person explicitly established his or her duties in a supernumerary role in a meeting with the clinical lead, for peace of mind.

However there were some 'grey areas', as one person termed it, where a judgement call was required.

> *"It is quite a common occurrence that you would carry a bleeper for an SHO if they are in theatre. You obviously then will be left in charge of decisions that it is debatable whether you should be making them, but I think generally it comes down to a judgement on the F1's part about whether this needs to be discussed with someone senior, and generally they're always available if they're needed."* (WPS20, follow-up, quartile 4)

> *"I just think some kind of definition of their [the SHO's] role would be helpful in order to give me the confidence to say to them, listen, I'm not meant to be seeing A&E referrals."* (WPS23, follow-up, quartile 4)

Responsibilities with regard to working hours were also questioned. A very committed F1 regularly stayed on longer to sort out further tests for patients, but wondered:

> *"I don't know if I have to do extra hours if there's a sick patient that needs to be seen to. Can I just hand it over and leave?"* (WPS15, follow-up, quartile 3)

Knowledge of others' roles

As with their own role, most F1s were clear about the roles of other team members. For some this has come with exposure in the first couple of weeks, including establishing to whom they could turn for help. For others there was some initial 'haziness' around the responsibilities within the medical team.

> *"I knew there was a registrar, an SHO, there's a house officer but I wasn't very aware of how things fall into place and how we work together. It is something I have learned as time has gone by"* (WPS21, follow-up, quartile 4)

Most F1s had found that preparedness to work in a team as final year students had been as easy as they had expected.

> *"It's been good."* (WPS14, follow-up, quartile 3)
>
> *"I found that quite easy."* (WPS2, follow-up, quartile 1)
>
> *"Fully prepared."* (WPS23, follow-up, quartile 4)

9.2.3 Warwick Triangulation

A few respondents expressed concern that F1s were not always prepared for their role.

> *"….when I was a junior doctor, we had a lot of pride in making sure when the patient left the hospital everything was sorted out, things were tied up... that was what was expected and it was something you should do and if you didn't do it your consultant would pull you up on it. And so I'm surprised that they don't do that at certain times."* (W Undergraduate Tutor 9)

Generally it was thought that F1s were well prepared and supported by teams, appreciating the help provided.

> *"Some are very grateful for the team around them and naturally sort of sink themselves in and value it. ... they've worked in teams for bits of learning and things like that, but never so intensely and never so inter-dependently as they have. And I think that's one thing that I would like to see them thinking about it a little bit more when they come in - what the team needs."* (W Portfolio Assessors' focus group)

Developing the team as a unit, ensuring the F1 was integrated with the team and that a rapport developed with co-workers was seen as important.

> *"They will have to approach people to ask for things to be done, to try and expedite things....if they aren't good at building that rapport quite quickly again it's going to be reflected here and reflected in the work."* (W Portfolio Assessors' focus group)
>
> *"They do feel like appendages rather than integrated into the team however much you try. It may be a feature of how long they are with us, it may be a feature of how they obviously have to have their formal full training sessions."* (W Undergraduate Tutor 4)

9.2.4 Summary of 'Knowledge of roles' for Warwick graduates

Most respondents at graduation felt unprepared for exactly what the role of an F1 would involve, although clinical placements and information packs were seen as helpful, with shadowing the most useful. There were a few clinicians from the triangulation data set who expressed some concerns about preparedness to take on the full role of a doctor.

Almost half of the medical graduates felt prepared for team working, often due to having spent time working in specific team in the hospital where they would be working. Non-clinical group work with other students was seen as developing transferable team-working skills though. The first few weeks working as an F1 improved their understanding of both their role and the role of other members of the team. The clinical view from the triangulation data was that the new F1s were well prepared for the F1 role but fully integrating them into the team could take longer than short clinical placements allowed.

9.3 Glasgow Graduates

9.3.1 Expectations of Glasgow primary sample

Knowledge of own role

In general the respondents seemed to know what was expected of them and were confident that they would gain help if required.

> *"I think I would say that I do know my role so I wouldn't say that I'm quite out of my depth there"* (GPS12, first interview, quartile 2)

> *"I know what our roles and responsibilities are and I know that there is always help about that can help us, we are never going to be left to do anything that is beyond our abilities"* (GPS6, first interview, quartile 3)

However some respondents were not sure where their responsibilities began and ended:

> *"I kind of know the main roles but I'm not exactly knowing where boundaries are...it's also hard to know when to get other people involved, like they say oh you should always ask for senior help but do you, is it going to cause a problem are you going to be not liked very much if you ask for too much help from seniors"* (GPS9, first interview,, quartile 4)

Others had concerns about specific aspects of their role, for example working at night.

> *"it's not always made clear to us...like what the night JHOs are responsible for and what the day time, I wouldn't say I know, like if my first job was as the night JHO I don't think I would know exactly what was expected of me compared to if I was on the ward during the day."* (GPS18, first interview, quartile 4)

Knowledge of others' roles

The respondents from Glasgow interpreted this question in two ways. Some discussed the roles of other professions such as nurses, physiotherapists and other professions allied to medicine. Others interpreted the question as meaning the roles of other doctors such as FY2s or specialist trainees.

Most of the respondents felt that they had a good idea of the roles of other professions they would encounter on the wards.

> *"Yes, I think so for the common professions allied to medicine I think we get a lot of information and we get a lot of teaching from them. Not too much by any means, I think it is quite good and I think I am very aware of the role of like the Occupational Therapist or the Physiotherapist, or the Social Worker, or my sister is a Nurse, so I suppose I've got that added thing, but yes I am very clear and I have a lot of respect for these other professions and I do see them as…. I don't see like medics as being the ones in charge, you know I just think we are all in this together as a team and that is my view on it and that probably has a lot to do with this course and that is a really positive bit of the class".*(GPS19, first interview, quartile1)

This was attributed to having had the multidisciplinary team drummed into them during the course.

> *"I think we've been drilled into the multi-disciplinary thing quite a lot since the past 5 years so yes we are quite aware of the team working thing by actually going to practise and asking people for help, it's probably a different thing all together but we are very much aware of the right protocol..".* (GPS3, first interview, quartile 2)

However some respondents felt that there were areas where their knowledge of others' roles was less good.

> *"I'm not sure…I mean there is a lot of emphasis on you know multi-disciplinary team and you know that the Nurses are there to do certain things, but I think that is something I'm going to find out. I don't think I particularly know right now what I'm going to be….what people are going to be available. I know there is ECG technicians to do some sort of things. I know that I'm going to have supervisors who are responsible for me, but the exact definitions of what everyone does….no, not yet, and I know there are a lot of teams in place. Like there is colonoscopy teams and there is different teams to deal with different kind of patient groups, but I won't really know what is available until I'm there and I'm hoping the Nurses are going to help me out a lot!"* (GPS16, first interview, quartile 2)

They felt that this was an area that they would learn on the job.

> *"I think we have been sort of given some sort of information and they did go quite a lot into it in the early part of the course about a multi-disciplinary team and things like that and they did make it quite a big point, but it is difficult to obviously know what one does when you don't see them in their context. But, I think I would have a vague idea of what people do and that is the type of thing that if I wanted something specific I would ask someone…..it wouldn't concern me that much."* (GPS17, first interview, quartile 1)

Those respondents who interpreted this question as referring to the roles of other doctors expressed some anxieties about when their responsibilities ended and those of FY2s began.

> *"To be honest I don't know that much about it. And that is something that causes a bit of concern because sometimes you think well is it my job to do that or should I be phoning the FY2 or the SHO or should I be dealing with it on my own, you know, and I don't think that is something we have ever been sort of taught about, you just pick up bits and pieces when you are on clinical placements …"* (GPS14, first interview, quartile 1)

However other respondents felt that they had a good idea about this.

> *"Fine I think, yes. I would say that I've been on the ward long enough that I know who does what sort of thing and they were talking before about doing resuscitate orders etc. and I know that that would never be a JHO, it would be more an SPR etc. that would give that sort of thing."* (GPS6, first interview, quartile 3)

9.3.2 Experience of Glasgow primary sample

Knowledge of own role

The majority of this sample were fairly clear about what their role was and what was expected of them, although a few observed that one adjusted one's role somewhat depending on which team one was working with (because of differing expectations of what an F1 can and should do in different teams). There was no indication that no explicit instructions had been provided as to what the role of F1 should involve, but several respondents mentioned that helpful seniors – such as the SHO – were good at telling them what to do and what was expected.

It was noted that because different hospitals and different departments operate in quite distinct ways, preparing an F1 for a specific role was not something the university could really have done successfully. A minority felt that their role needed clarification – this seems to have been in departments where seniors either gave less guidance or weren't around enough to provide clear guidance:

> *"Even now, I think I still find it very difficult to know exactly what it is we are supposed to do. I've just finished a surgical job and it's a bit more straightforward [than medicine] but there weren't always seniors on the ward and you weren't always 100% sure what to what level you should be doing things"* (GPS18, follow-up, quartile 4)

Knowledge of others' roles

The majority of respondents were also clear about the role of other team members. However, some F1s mentioned some confusion and 'blurring' with regard to their own role and that of the nurses. With nurses able to do many of the tasks a junior doctor can do, these F1s were not always clear who should be doing what, and the extent to which they could or should delegate tasks to nurses.

> *"The one thing I would say about the nursing staff is that there is a bit of blurring now in the sense that quite often they have been trained for extended roles, but we never know who has this or who hasn't. ...you will find quite often that nurses are trained in cannulation or venepuncture, but ...I've not found that many nurses are forthcoming in doing that."* (GPS19, follow-up, quartile 1)

> *"I think it is becoming a bit more clear now. Even things at the start that you sort of wonder is that, do the nurses do that? Do the doctors do that?"* (GPS4, follow-up, quartile 1)

Two trainees also mentioned that prior to taking up their first post they had little idea of the role ward pharmacists play.

> *" the role of the pharmacist that wasn't, you weren't really sure what, apart from obviously, looking at medications and dispensing things up to the wards, that, you weren't quite sure about that because you hadn't had that much contact with them. Pharmacy is something that we did a little bit of, really not enough."* (GPS1, follow-up, quartile 2)

When asked specifically about the challenges of working in a team, none of the F1s reported serious difficulties, although there were some minor challenges in terms of working with difficult personalities. Specific issues mentioned included team members who are perceived to be not pulling their weight, or are just not good at sharing information and operating as a team. Experiences of teams were quite variable – one F1 noted that the team they had worked in was *'dysfunctional'* (*GPS4, follow-up, quartile 1)*, another described a team as a *'dictatorship' (GPS13, follow-up, quartile 2).* Other teams were 'really good' *(GPS18, follow-up, quartile 4)* and *'nice and friendly' (GPS5, follow-up, quartile 4).* Specialty may be related to this:

> *"In the medical job it [my role] was more clear and you felt like part of a team. ...In the new surgical job it feels like you're really there to be a bit of a secretary and the seniors go off and have coffee by themselves and it feels like less of a team and more like they're the team and you're the employee. But I don't know, maybe it just takes time to get used to a new team."* (GPS10, follow-up, quartile 1)

9.3.3 Glasgow Triangulation

The general view was that the FY1s were prepared for some aspects of their role but not fully prepared.

> *"I think related to clinical care also there is, they have understood very early on that it is very important to get blood results and investigation results but they see their role as writing those results in the notes, not acting upon them, so they will write things like potassium 2.2 as part of a list of…electrolytes results and then and then sign it and make it quite clear who it is and not act on it"* (G Key Manager 4)

This was mainly attributed to lack of experience

> *"Certainly I think those that have been through a problem-based learning course such as Glasgow are perhaps more inquisitive, you know, find it easier to acquire knowledge than people who have been through a traditional course but I think they have great difficulty in working out what their actual role in a ward situation is because unlike previous generations they haven't done locums and worked"* (G Key Manager 5)

9.3.4 Summary of 'Knowledge of roles' for Glasgow graduates

In general the medical graduates reported they were confident about the roles and responsibilities of an F1. However, there were some who expressed doubt about the boundaries of roles and who did what, and when. At the end of the first placement the majority reported that they knew what was expected of them, although some reported that they felt their role still needed clarification as seniors were either less present or gave less guidance. The responsibilities of extended nursing roles were also confusing to some. Generally working in a team was not a problem, although some did report being based in dysfunctional teams. The clinical perspective from the triangulation data indicated that the F1s were prepared for some aspects of their role but not all aspects. In the past new graduates would have started work with more on the job experience from having acted as locums in their final year.

9.4 'Knowledge of roles': common themes and differences between sites

Generally the medical graduates at each of the three medical schools reported that they had some knowledge of the F1 role before starting work. After shadowing and four months of working as an F1 they were much clearer about their role and areas of responsibility. Working as part of a team was generally positive. Generally the clinicians in the triangulation data tended to agree that new F1s were prepared for some aspects on their role but not all.

There were no clear differences between medical schools.

9.5 Commentary on theme from the research team Professors from each medical school

The boundaries of roles are an issue that needed further clarification, particularly with regard to how far F1s can go before calling for help. Other areas are about knowing the boundary of their role and that of others. This was clearer in the past, but is less clear now that nurses take on more tasks and with the introduction of phlebotomists.

Chapter 10. Managing the duties of a doctor

This theme covers most of the practicalities of doing the F1 job. It includes working on the ward, learning about hospital procedures and systems, managing patients, handover, prioritising work, managing time, doing on-call and dealing with all aspects of the paperwork that F1s are concerned with.

Other aspects that are closely related but warranted coverage as a separate theme were: prescribing, clinical and practical skills and communication.

10.1 Newcastle Graduates

10.1.1 Expectations of Newcastle Primary sample

Ward work

The central activity which a new doctor must adapt to is the overall process of working on a ward, learning how wards operate and the way procedures and teams fit together. Graduates recognised that there are practical issues in adapting to the day-to-day environment of the ward that a purely educational environment would be unable to prepare them for.

> *"…nothing prepares you for [practice]. You can't prepare for it, you just have to do it. You know medical school is never going to prepare you for it"* (NPS22, first interview, quartile 4)

> *"I think erm a lot of things at medical school or the medical curriculum doesn't prepare you for – it's just the er, nitty gritty of getting things done in a hospital, in terms of how does it work, what staff are available to you and when – when is it appropriate to call someone when is it not, and just the mechanics of kind of how it actually all works"* (NPS65, first interview, quartile 3)

A specific subset of ward skills is the appropriate use of the various forms and other paperwork involved in day-to-day ward practice which, while routine, is not part of the undergraduate training. Awareness that different hospitals may have different systems caused concern to some.

> *"It changes from hospital to hospital and you've got to pick it up at the time but who's going to tell you until you've forgotten to do it and they say 'Why haven't you done this?' and you'd be like 'Well, I didn't know' and it's not really an excuse so trying to learn those sort of things and make sure you keep up with the paperwork, keep up with the documentation and also just be aware it is all tricky and I think that it's an area that I don't feel very prepared for"* (NPS224, first interview, quartile 1)

> *"Things like discharge summaries and writing in notes I think's fine... the blood forms and stuff may be, because it's different in all the different hospitals like, I can't imagine them being too complicated but again we don't fill them in"* (NPS93, first interview, quartile 3)

On call

Taking on the responsibility of being on call was an area of concern raised by several respondents. This was an area that they felt they had less exposure to as students. They were particularly worried about having to make decisions on their own, but expected support to be available.

> *"Yeah, it's more just the level you're expected to do overnight, like whether you just go and do the immediate sort of resuscitation or if you're expected to take an extra step if you know what to do and ... things like bloods like whether, like how quickly they're processed overnight and like what happens, like the x-ray facilities and the CTs and things like that"* (NPS93, first interview, quartile 3)

> *"I think the biggest change is going to be the on calls actually because you do – we do on calls as medical students, but obviously we're not there on our own and you haven't got to make a decision on your own, and I think it's going to be the more serious like cardiac arrests and just bleeps in the middle of the night first someone falling over and what – what you sort of think about doing"* (NPS181, first interview, quartile 2)

Time management and prioritising workload

Prioritising tasks and patients was another area some graduates were concerned about. Learning to prioritise patients and manage the workload was something that needed to be achieved by being on the wards and having to prioritise work. Some students expressed the view that this could only be learned on the job.

> *"Yeah, that was one of my questions in my interview, How do you prioritise tasks?"* (NPS194, first interview, quartile 1)

> *"Maybe sort of time management as well, how people manage time to get through the work"* (NPS9, first interview, quartile 4)

> *"It's a time management and it's a patient priority thing rolled into one really ... there's no lecture that's going to tell you to get better at time management...it's not a failing of the medical school or my medical education that I haven't got it...they can try and encourage you to do but I think a lot of it's kind of, you have to be self taught"* (NPS224, first interview, quartile 1)

Handover

Handover was a particular team-based interaction for which some respondents had felt under-prepared in terms of formal teaching (handover constituting a distinct event with particular communication requirements). Some respondents however had acquired experience or at least knowledge of handover, and had found it to be helpful.

> *"They are quite keen for the students to come in for the handover ...so you are aware of how information is summarised and what people need to know ...I think that is something that I am reasonably comfortable with"* (NPS9, first interview, quartile 4)

> *"I think I probably don't feel confident in…we don't do that sort of handing over as a student, so I think that's an area where we have to learn to be succinct and learn what are the important things that we need to hand over and I don't feel very confident in that area. But it's just going to be one of those things that we have to learn whilst we do the job I guess"* (NPS190, first interview, quartile 1)

10.1.2 Experience of Newcastle Primary Sample

Ward Work

Ward practice, the administrative side of ordering investigations and tests, and appropriate clinical paperwork, are seen as varying with specific organisations – trusts and hospitals. While not all respondents had experienced difficulty in these areas, these were issues for some.

> *"I think because all the different hospitals have different ways of doing things it would be difficult to teach"* (NPS209, follow-up, quartile 1)

These different 'ways of doing things' include both explicit procedures, and implicit organisational culture.

> *"… at the beginning it wasn't really explained to us … how you order things and who you should contact and things ... and like the time scale … if a consultant says they want an urgent ultra-sound or something, then you've actually got to go down and speak to a consultant. Whereas you don't really know that at the beginning ...You*

> *just kind of presume if you write 'Urgent' on it, it will happen urgently, and then it doesn't".* (NPS93, follow-up, quartile 3)

> *"… you learn [hospital procedures] as you're on the job, I don't think you learn that at medical school … the forms are different in every hospital just about…how you order MRIs and if you want x-rays done out of hours and things like that, that all just comes with doing the job and finding a big stack of x-rays and wondering why they haven't been done…"* (NPS224, follow-up, quartile 1)

> *"I think when I first started, things like requesting x-rays, when I was clerking on the EAU, on the emergency admissions unit, everyone should have an x-ray really and it was knowing what you had to write on the form to make x-ray come and do"* (NPS139, follow-up, quartile 2)

These hospital-specific things can relate to clinical protocols.

> *"… every trust has protocols for different procedures and things … it is on the trust intranet, but it's not really that readily available ... we have brought it up with the medical department and they have said that perhaps it would be better if we were issued with a hard copy of the protocols before we started or if they were just more accessible"* (NPS26, follow-up, quartile 4)

There was a feeling from several respondents that more extensive experience on wards as an undergraduate would have better prepared them with the set of skills necessary for ward work.

> *"I think I wish that we'd had a bit longer… just spending time on wards so that we could get used to just how things worked. ...it's useful to be able to get to know staff so you don't feel so stupid asking silly questions and things. And it would have been useful to be placed on one ward for a long time just so that you could get to know the ins and outs of how things worked and things like that. And you never really did as a medical student"* (NPS18, follow-up, quartile 4)

> *"… you had no idea what you were doing. In terms of you didn't know where the wards were. When you did get to the ward, you were doing things that you'd never done before. But I think … I mean it was stuff that I knew in the back of my head – does that make sense?"* (NPS139, follow-up, quartile 2)

As with many of these areas, support from colleagues eases the transition.

> *"You know in theory, but you've never really had to do it properly just for yourself. But you just have to phone up biochemistry and they tell you, and it's all relatively straightforward. There's normally someone to ask".* (NPS139, follow-up, quartile 2)

> *"I think it's easy to understand because there's always someone that you can ask and just say, and mostly it's the nurses that can give you a lot of information about that and say 'Well, actually, normally what you do is this'."* (NPS26, follow-up, quartile 4)

> *" … other forms and things that I'm not familiar with it just takes a little while to just, you know even knowing where to find them or where they are kept and kind of where they get sent to but again I suppose that's just kind of a case of asking the right person to help"* (NPS181, follow-up, quartile 2)

Not all respondents felt under-prepared, some attributing this to previous experience.

> *"[I've not had any difficulties and] I think that's because I was here third year/final year so I, I'd sort of already gone through that and got used to err how they worked".* (NPS24, follow-up, quartile 4)

> *"I was so glad having made friends already…knowing where things were…forms, knowing how they did the ward rounds"* (NPS143, follow-up, quartile 2)

Specific ward practices may also relate to equipment which a new doctor may not have had exposure to as a student:

> *"… almost the first day and one of the nurses came to me and said 'Doctor, this patient's blood pressure is really low' and I went over, they are hooked up to loads of bits of monitors … they had a low adrenalin pump and I had no idea how to operate that"* (NPS136, follow-up, quartile 2)

The concerns about paperwork expressed in the first interview were reiterated following the first placement.

> *"There's a lot of stuff you just never learn at medical school ... it comes up very quickly you know, a lot of the sort of form filling ... then you know your first or second day somebody gives you, 'write this patient's discharge summary' and then there's a little box at the end which says follow up and you just think well I have no idea ... sort of the idiosyncrasies of the job which I suppose is probably different in different places"* (NPS224, follow-up, quartile 1)

> *"… just practical things as well, filling out forms and discharge scripts and things like that. There seems to be a lot of things that we do on a day-to-day basis that weren't really covered in depth at medical school"* (NPS18, follow-up, quartile 4)

> *"The first time I completed [a cremation form] I took a little bit longer to do, because I wasn't sure exactly what I was meant to be writing"* (NPS108, follow-up, quartile 3)

The lack of preparedness in these areas is in part related to the mechanics of knowing where forms are and how they should be completed, but there is also an element of applying clinical knowledge.

> *"It's been difficult knowing what to put on the form to make sure that you get the clinical information across without it being… in a kind of concise manner. We've not really had any experience of that before"* (NPS18, follow-up, quartile 4)

> *"I needed to ask for some help with how to write a discharge script for a person on ITU, and definitely how to write a referral letter properly, what sort of information to include".* (NPS136, follow-up, quartile 2)

There are also aspects of work relating to how practice on a particular ward or department fits into the overall system of the hospital, and contingencies related to the relationships between departments which new doctors may not be aware of.

> *"… there have been shifts that have been diverted to us [as a hospital] so that we fill up very quickly and patients end up waiting in the corridors and then obviously in A&E you've got the 4-hour breech target as well which plays a major role in A&E"* (NPS194, follow-up, quartile 1)

> *"I wrote out a CT request, and I put all the information, and honestly this for me was the perfect CT request...[I sent it down and] they told me off and told me I should have gone and discussed it with them…You know there's nothing on that card I could have added but, you know … I will pander to their whims next time"* (NPS8, follow-up, quartile 4)

> *"… at the time I didn't realise there was actually a phlebotomist who would come round"* (NPS143, follow-up, quartile 2)

> *"… your consultants say I think this should be referred to NCT because they might have had a stroke blah, blah. You go down to radiology and they say that they have no slots today and we cannot see them ... so you end up kind of a bit caught in the middle. It can be quite good fun"* (NPS65, follow-up, quartile 3)

Some multi-site placements also bring their own issues:

> *"The general surgical team also covers [another site] 12 miles away…I was called and told 'why have you not come to [the other site]?' …she told me that my consultant had admitted a patient there yesterday…I ended up discharging the patient that I hadn't seen and prescribing drugs for a patient that I'd never seen"* (NPS209, follow-up, quartile 1)

> *"… we had some teaching on how to use the blood system in [site 1] but it's actually a different system entirely at [site 2]. But it was quite easy to pick up and I don't think it hindered us it was just something else we had to learn when we got there kind of thing".* (NPS181, follow-up, quartile 2)

On Call

A big change experienced by new doctors in their first placement is that of being on call. As well as the clinical responsibility this involves, there are also practical sides to it for which the respondents were not all prepared.

> *"I think the pressure of just getting bleeped all the time and getting all these calls for admissions and you kind of felt like you were fighting against everyone else as well … you were meant to inform the bed manager, but no-one tells you to call the bed manager … you just kind of find it all out the hard way I guess"* (NPS93, follow-up, quartile 3)

> *"… initially it was quite difficult because when I was on call I didn't realise that if I took a GP admission then that was my patient, I had to see them, I had to triage them, I had to do everything that they needed"* (NPS18, follow-up, quartile 2)

On call can mean covering wards other than that the F1 is placed on, and may mean covering other specialties. Some F1s are in hospitals where they may be effectively on call for the whole hospital, and may have to attend patients in specialties they have had no experience of. For some this is a challenging start to their medical career.

> *"I think starting on nights was really tough … in the hospital I'm working at now they've got a back of house system where you're the doctor that covers all the wards in the hospital and you're kind of on your own. And there's a registrar that you can call if needs be but you're kind of expected to just get on with it and they've got their own work to do so they're quite busy anyway. So that was … you felt quite isolated and I just kind of felt in at the deep end".* (NPS18, follow-up, quartile 4)

> *"… you're on call and they ring you about a patient that's on their ward that you don't cover normally... you cover different wards, you don't know where anything's kept on the ward and it takes you twice as long to do anything because you're, you know, you're trying to find where certain things are".* (NPS26, follow-up, quartile 4)

> *"Ward cover is very difficult and I did that in my second week and was just completely unprepared for it. You are getting bleeped all day ... because we covered 8 wards, to see patients you don't know with problems that you are not familiar with"* (NPS22, follow-up, quartile 4)

For others though it is a fulfilling hurdle to pass. This respondent sees the situation as being eased both by undergraduate experience and a supportive team:

> *"I think I was really lucky that I started off on nights. But at the time it was absolutely petrifying and I'd worked in an old people's home when I was a student, so I'd actually done nights which I think probably was an advantage … and as long as you had a certain air of confidence about you, you could get away with it. And I mean it was absolutely petrifying but I was so glad that I started off doing kind of the hardest thing first … the registrar that was on and the SHO that was on were so supportive because they knew that it was the first night".* (NPS139, follow-up, quartile 2)

This respondent also indicated that the availability of undergraduate experience involved a degree of choice in taking opportunities.

> *"I hadn't gone out of my way to make sure I'd done any [on call]. I know the opportunities probably were there, but I hadn't done it. But to be honest, I absolutely love the on-calls. I find it the best bit".* (NPS139, follow-up, quartile 2)

> *"… maybe if we'd had more opportunity to do more on call in shadowing as a student perhaps with maybe some time off during the week … I didn't actually really*

> *shadow any F1s kind of doing that out on call, or, and it would have been voluntary and kind of in addition to everything else that we were expected to do"* (NPS9, follow-up, quartile 4)

Time management and prioritising workload

A major change experienced by respondents when starting work was that of having multiple demands on their time. Time management is not just a question of establishing an appropriate, autonomous plan of work, but also responding to demands from colleagues.

> *"I think time management's just tricky … people just keep trying to say will you please go and do this for me, can you go and do this for me when I've got other jobs ... [but] I don't know necessarily that whether I am allowed to say no, go and do it yourself or not"* (NPS224, follow-up, quartile 1)

> *"I suppose initially it was difficult to prioritise but I think quickly you learn what things you need to do both when you are on call and when you are working day-to-day in the ward".* (NPS26, follow-up, quartile 4)

This is an area where some more undergraduate preparation would have been useful to some respondents, although recognising it is another skill which develops in the workplace.

> *"… it's quite important to be able to kind of prioritise things and get used to having lots of things going on at the same time. And as a student we'd never really experienced that because ...you just went to see one patient at a time and you didn't really have to worry about multi-tasking and things like that...I think with hindsight I would have liked to have had more experience in that... As time has gone on I've felt more able to prioritise and realise that there's certain things that need to be done immediately and there's certain things that can wait".* (NPS18, follow-up, quartile 4)

> *"… having to manage a certain number of jobs in a certain amount of time, that's really quite difficult. I suppose you're not going to be faced with that until you start working and you know when you're covering people that are away I think the one I had had like twenty-one patients to kind of manage all the jobs for"* (NPS9, follow-up, quartile 4)

Time management must also involve being aware of clinical situations, and prioritising tasks appropriately.

> *"I would say you do begin to learn who is going to be ill, or who is ill and knowing that taking somebody's blood to check their full blood count isn't as important as somebody with shortness of breath"* (NPS136, follow-up, quartile 2)

> *"You don't prioritise at all the first few times you cover the ward, you just go to everything ... so you leave late… Time management is quite an issue as well … I have made a huge improvement since I started … I leave just about on time as opposed to over an hour late every day"* (NPS22, follow-up, quartile 4)

> *"You try and do the most urgent first but sometimes your bleep will go off ten times an hour and you think 'oh goodness, what can I do?'… We had a day [as undergraduates] we would be bleeped … you responded to it but on your way to responding the bleep would go off again"* (NPS209, follow-up, quartile 1)

Positive and negative experiences of co-workers are reported by some as affecting the transition to this dynamic environment.

> *"It's quite hard in a way when you keep getting bleeped all the time ... I think a lot of the time, nurses and doctors have very different priorities ... they think something else is [important] and things like they're always trying to get patients home quickly … whereas that's very much something I don't see as urgent and like, you want to see the sick patients first".* (NPS93, follow-up, quartile 3)

> *"In the first week I struggled but again I think that was just teething problems … but now I find it quite easy, the nurses don't always agree with the way I prioritise things,*

> *but I just base it on kind of you know the patients themselves, who is the most sick"* (NPS108, follow-up, quartile 3)
>
> *"I think my seniors have helped with [time management and prioritising]. Initially I think I'd go through things in an order and start with patient one and go through to patient twenty"* (NPS143, follow-up, quartile 2)
>
> *"It would have been useful for the consultants to have said over the first week, right these are important, these are less important, rather than waiting eight weeks".* (NPS106, follow-up, quartile 3)

The nature and significance of prioritisation also vary with the clinical context:

> *"… everyone kind of knows each other … all the nurses, all the physios … if you have any problems people just shout you and you go and see it straight away because you're quite often not as busy as you might be in another hospital"* (NPS181, follow-up, quartile 2)
>
> *"… in A&E it is fairly easy [to prioritise] because patients are already triaged …"* (NPS194, follow-up, quartile 1)
>
> *"… in A&E you don't have to [prioritise] because you just have one patient and then two of you pick up. MAU it can be a bit tricky because you have got lots of different patients with lots of different jobs that need doing, but usually you are fairly clear what is more important. On nights you have to prioritise quite a lot because you may get 3 or 4 different bleeps that call for different things. But again it is, you go where the people are".* (NPS65, follow-up, quartile 3)

Handover

Overall, despite handover being a new activity and one several respondents had identified concerns about before starting F1, they generally reported it to be unproblematic in the follow-up interviews, and indeed an area where medical school teaching found new relevance.

> *"… we did have a little bit of teaching on handovers … I mean at times you think I don't know when this is going to be relevant [then you] realise that it actually was quite good, kind of in a retrospective sense"* (NPS139, follow-up, quartile 2)
>
> *"I think we all felt that like, in medical school we'd had too much like, communication skills and things ... But then, when we've actually started work, like, they're the things that really matter in working out what information you need to pass on and what to leave out, and when you need to, sort of, contact other people. It is quite important, you had to do a good handover"* (NPS93, follow-up, quartile 3)
>
> *"If anything it's got better because I've become more concise with my handover, I think at the beginning I was trying to include everything, and now I have my own system and I'll know what to include"* (NPS143, follow-up, quartile 2)

Handover is seen as having implications for patient care.

> *"… with nights … things can go wrong if you don't handover quite thoroughly. … there was a lady who had quite a big heart attack … she needed blood tests 12 hours after … as it worked out the F1 on that ward had not been there and hadn't seen any of the patients, neither had the SHO so they did not get the blood tests that they needed"* (NPS65, follow-up, quartile 3)
>
> *" I think we've ended up over-investigating patients that have actually just sort of been there for palliative treatment and there wasn't an awful lot that could have been done for them, you know because of a lack of a clear handover".* (NPS9, follow-up, quartile 4)

Handover is not talked about as just a clinical activity but also an element of time management, and the development of professional relationships. Several respondents talked

about the decision to hand over in terms of tasks which they had been unable to complete in their shift, and the decision to hand them over to a colleague.

> *"I handed something over tonight …, you know it got to quarter past six and I'd been in for an hour longer than I should have been ...[I phoned the F1], 'I'm sorry to hand it over to you' … I've not had any problems with that but … I feel bad about handing things over".* (NPS224, follow-up, quartile 1)

> *"… you've got to have a proper balance - if the job isn't done by five fine, if you can finish it in half an hour get it done and if not ... you're just going to have to hand things over so I think I'm better at handing over but I've never had problems from anybody accepting things it's just me being willing to hand it over really".* (NPS8, follow-up, quartile 4)

> *"… in A&E there's a few handovers where if you're looking after a patient and you've got teaching or whatever then you need to handover to somebody else so you can go off for teaching. And it's not really been much of a problem".* (NPS18, follow-up, quartile 3)

Several respondents described problems in receiving handovers. Ward cover can cause problems if handover is between juniors who do not have experience of each others' specialty.

> *"Initially there were problems with handover both in receiving and giving adequate handovers. People would hand the list of names of patients with own jobs, no clue as to what their problems were".* (NPS209, follow-up, quartile 1)

> *"The only problem I did have was somebody handing over to me and they gave a very brief handover and I went to see the patient and it was something completely different".* (NPS193, follow-up, quartile 1)

> *"… you can get someone who's doing obs and gynae coming over to cover the nightshift for the weekend … and they've got all the teething problems that we had … it's just that when you're handing over to a non-surgical F1, you've handed over and they look a bit scared"* (NPS108, follow-up, quartile 3)

> *"There's a sort of formal handover about half past eight, sometimes it's quite difficult to get to that if you're covering surgery till nine o'clock, [but] we always handover to the F1 on call even if we don't get to the formal handover"* (NPS24, follow-up, quartile 4)

Teaching

The majority of new F1s had taught medical graduates during their first F1 placement and said they felt prepared for it, with some commenting that they found the experience enjoyable and felt comfortable doing it.

Many respondents reported that experience of teaching in their medical school had helped prepare them.

> *"I had a little bit [of teaching medical students] and we did some in final year, which is quite useful I thought, you go through examinations with them and things for their third year exams ... but mainly showing them procedures like cannulation, and blood tests and things which is fine. But yeah I certainly felt comfortable doing it"* (NPS65, follow-up, quartile 3)

> *"I did a bit of ... you do a bit of teaching when you're in your fifth year to third year students and I think it's been okay actually"* (NPS26, follow-up, quartile 4)

> *"Well I think you know medical school expects you to teach and in your final year you were having to teach third years erm, so I didn't find it a problem"* (NPS106, follow-up, quartile 3)

Some respondents made comments relating to their own experiences of being taught as an undergraduate and were able to use this experience to help them teach.

> *"I've been quite proactive in teaching actually, I really enjoy it anyway ... I think having only been a student myself four months ago, five months ago, it's something that I think I've just related to you know, I kind of know what they want to know..."* (NPS143, follow-up, quartile 2)

> *"Really good, enjoyed [teaching medical students] we have had third years ... because I remember what it was like ..."* (NPS209, follow-up, quartile 1)

> *"It wasn't that difficult also because I've been in their place before and I knew probably at their level [what they needed to know] I managed to keep it to a level what they needed to know and given them some information that's not too much for them"* (NPS182, follow-up, quartile 2)

10.1.3 Newcastle Triangulation

Ward Work

Respondents in the triangulation group related what one referred to as the development of F1s' 'wardcraft' to the practical experience of working on the wards, and changes to the amount of exposure medical students and junior doctors receive, and how changes in medical education affected this.

> *"I sometimes worry that they are asked to do so many other things that they don't have the opportunity to do the running of a ward as in 20, 30 years ago where finally the students were expected to run the ward for a couple of weeks. I think we have perhaps lost that ability, that would be one of the main things so that the first time that they actually do the job is when they do the job, you know"* (N Undergraduate Tutor 6 also educational supervisor)

> *"One of the most useful things that we did as undergraduates was spend most of our last year in some sort of clinical attachment that was more to do with doing the nuts and bolts of being a house officer… I just wonder with one or two students if they actually had the opportunity just to be around and see the job being done before they start"* (N Educational Supervisor 3)

This experience is key to the experience of ward work:

> *"You know, you're used to it, as the medical student, coming in, you take your time clerking a patient, you then present it at a later date to the F1 or F2 and it is quite a shock to the system to suddenly have to do it yourself and then move on very quickly to another sick patient before you've maybe spent as much time as you would have liked to have spent"* (N Key Manager 1)

However, the view was not all negative:

> *"Yes I think [they are fully prepared] to do routine ward tasks, you know the running of the ward"* (N Educational Supervisor 14)

While classroom teaching with mannequins and simulated patients was seen to have benefits, it could not and should not replace the valuable experience of working on the wards with real patients.

> *"I think it does need to go back to that apprenticeship type, type role...Just learning how to, how a ward operates, how things are done and how things are not done in real life, isn't necessarily easy to learn in a classroom or lecture theatre"* (N Undergraduate Tutor 13)

> *"There is a balance to be struck"* (N Educational Supervisor 19)

> *"I know in some placements with the final years, they do try and do kind of a simulated multi-tasking session with them, which they all enjoy, but again they are aware this is role play, it's not quite the real thing."* (N Key Manager 1)

New F1s were seen to be strong at the paperwork element of ward practice.

> *"They are fully prepared in terms of their ability to prepare documentation."* (N Educational Supervisor 7)

> *"Many of them are extremely good at documenting stuff in the notes, far better than many of the middle grade doctors or even senior doctors"* (N Key Manager 6)

> *"No, not a problem"* (N Educational Supervisor 19)

However, the variation between hospitals could cause problems in the initial stages:

> *"… [there are different] codes for different things, and those are all the things unique to each trust, so they can't be done too early"* (N Key Manager 1)

On call

The difficulties of adapting to the responsibilities of being on call were identified by the respondents:

> *"The hardest thing for them is the acute on calls. I think they struggle with assessing truly sick patients….and dealing with perhaps high intensity work loads…Often these two, being on call and intensity, go together I suppose, but those are the two things that I do worry [about]"* (N Educational Supervisor 14)

Making decisions in the acute situation was something they were expected to adapt to.

> *"Well I think clearly they must be less prepared to actually be doing things on their own. To make decisions, and I know that in their position really they are not supposed to be making decisions on their own, but that is often what happens in the heat of the moment when they are on call, you know before they get access to more senior staff. I think they are less used to doing that. I am not saying they can't do it, what I am saying is that perhaps they are less prepared to do it."* (N Educational Supervisor 15)

> *"I think that to start with the decision making process of actually taking action themselves is something they find they need a bit of time to get to, work up to fully"* (N Key Manager 8)

Time management and prioritising workload

Many comments from managers and supervisors identify time management and lack of ability to correctly prioritise work as weaknesses in the early stages of the F1 post.

> *"Well the big thing that has come through with quite a few of my trainees is … time management...they don't understand the administrative responsibilities of their job… and the other problem is that they can't, it takes a long time to learn how to prioritise"* (N Educational Supervisor 3)

> *"They're also very concerned about time aren't they? They find it very difficult, if they do have any time management issues it comes up in those first few weeks and they can, they can struggle and that on a clinical point of view but then they say 'well we simply haven't got time to do the portfolio as well'. You've got to sort of coax them along and get them to understand that"* (N Portfolio Assessor 2)

Ability to prioritise is seen as an area of expertise which develops in practice, and which cannot necessarily be prepared for, although more training in this area was seen as beneficial.

> *"I think, I think prioritising tasks is difficult for them because they think that everything is important, there are a lot of tasks to do and so you know prioritising is a difficulty"* (N Undergraduate Tutor 11)

> *"Just suddenly to be put in that position is, you know when you've got someone who is profoundly sick you know, right in front of you and someone who is even sicker at the other end of the ward, how do you make a choice, how do you deal with that within your team, and some of them struggle with that more than others. Now that might be partly human nature, it may be just partly the way life is but anything that could increase their awareness of that I think would be beneficial."* (N Key Manager 7)

Handover

Handover was identified by some respondents as an area in which new F1s may be weak, which in part may be attributed to medical students being less likely to be present for handover during their clinical placements.

> *"While they might have skills in certain aspects of communication, what is apparent is that their communication skills between professionals - handover, passing on information - is often what's weak…. Students are now placed upon the wards, they're probably not around at times when handovers take place, I mean certainly on our wards handovers take place at 9 o'clock at night and 8 o'clock in the morning, and you know the likelihood of finding a medical student on the ward at that time is pretty remote. When we were medical students, you know, that was very different you know, you were there, you were around but now they're not."* (N Portfolio Assessor 3)

10.1.4 Summary of 'Managing the duties of a doctor' for Newcastle graduates

Medical graduates expressed some uncertainty about what they would be doing as F1s: paperwork, on call, handover, time management and prioritising work and referring patients upwards.

At follow-up these concerns were still evident. Several F1s reported that more experience on wards as an undergraduate would have prepared them better for starting work. Prior experience of a ward or hospital, and knowing people who have worked there previously made a difference. The routine paperwork that F1s have to deal with was something they felt they had not covered in depth at medical school. Other related issues were dealing with administrative aspects of the work, some of which vary between hospitals and departments i.e. procedures and protocols for ordering investigations and tests and completing the appropriate clinical paperwork. Some of this was eased by having supportive colleagues. Being on call was an area that F1s felt particularly unprepared for and generally this was described negatively. F1s reported that gaining this experience at undergraduate level had been an optional extra that only some chose to experience. F1s reported feeling exposed and out of their depth, having less senior help at hand but simultaneously having more responsibility and more pressure to respond and prioritise quickly – sometimes this involved making decisions without knowing the hospital policy. Some referred to 'sink or swim' – the few who did report they coped reported gaining a leap in confidence. Prioritising work and time management was something the F1s reported they did not practise as students as they mainly saw one patient at a time and experience of having to prioritise patients would have been helpful. Related to this was handover, which was identified as an important area where things can go wrong and sometimes this involved handover between juniors who had not experienced each other's speciality.

The clinical view gained from the triangulation data expresses some concern that F1s arrive on the ward with less 'on the job experience' than is ideal. There was a view that, while learning on mannequins and simulators had its strengths, there was a balance to be struck in terms of still gaining sufficient experience with real patients in the ward environment. Acute on call was recognised as being the most difficult experience for F1s. Being on call and assessing sick patients constituted a high intensity work load and sometimes 'in the heat of the moment' this led to them having to make decisions on their own. Other areas of perceived weakness were time management and prioritisation of cases in the early stages of the F1 post. It was recognised that this was an area that developed with practice but more training in this would be beneficial. Handover was identified as another weak area and again reflected a lack of exposure to this at undergraduate level. The clinicians reported no concerns over the F1s' management of paperwork.

This theme has combined many aspects of clinical practice. It has also raised concerns over lack of preparedness for practice. This is the perception of the primary sample before and after starting work and is triangulated with the views of the clinicians working with them.

10.2 Warwick Graduates

10.2.1 Expectations of Warwick primary sample

Ward work

The main concern of the new graduates with regard to ward work was that they would be working in unfamiliar surroundings if they had not had a placement in the hospital as a student. Particular concerns mainly centred on: who to speak to and telephone numbers when requesting diagnostic tests and investigations.

> *"I know little things like Hospital X has a policy that after 6pm you should bleep the lab to let them know you are sending a blood sample, which if you haven't been there, I am sure no one will teach you that … Patients do move round hospitals quite a lot and I am not too sure how you actually go about keeping track of all these movements. I have always just relied on someone else to have done that."* (WPS20, first interview, quartile 4)

Those final year medical students who had already started their shadowing period were more prepared for the practical aspects of the job as they had had an opportunity to find out how things worked.

> *"And, now that I've started my shadowing…..I 'm pretty confident that I know the hospital reasonably well, and I know where the X-ray department is, I know where A&E is, it's all very familiar. I feel quite prepared in that respect."* (WPS15, first interview, quartile 3)

Most respondents reported that they were not prepared for hospital procedures although after shadowing this had become clearer. Concerns included ordering tests and who to ask for tests.

> *"I'm sure the first month will be very difficult simply because I'm not used to the environment, the new nurses, new colleagues, where are the blood banks, where are the blood bottles, where are the blood forms where are things kept and procedures. If you want an urgent X-ray or an urgent ultrasound what do you do? ... So a lot of it is learning protocol and getting things done, which I think is down to the medical team because they are in the hospital so that's the biggest thing."* (WPS17, first interview, quartile 3)

However, some respondents did not feel prepared for paperwork including form filling and writing up results in patients' notes. Without access to computerised hospital systems there had been no opportunity to test out viewing x-rays and CT scans.

> *"I think some of the things like investigations and the writing of the forms and things 'cos that's what I'm learning at the moment all the paperwork side, although we had a practice at doing desk forms, there are loads of all the different paperwork that you have to put this and if you don't tick this in the right box and it won't get done."* (WPS12, first interview, quartile 2)

> *"The form filling in. And in as much as it's not like I've not never done it before, but most of my training in my last year, all of my blocks have been at [name of the hospital], in the district hospitals, and it's totally different where they go."* (WPS13, first interview, quartile 3)

> *"Also when it comes to results and investigations we tend to see it on a piece of paper or in the notes, but as a house officer you're the one writing it in the notes or printing it out and we don't have access to the computers yet, so we haven't been taught how to use those so accessing information is going to be a bit difficult."* (WPS17, first interview, quartile 3)

On call

For some respondents there were worries about being on call, sometimes related to not having yet completed further training, although they knew that help would be available.

> *"I'm not so worried about being on the ward, but it's when we're actually on call and we're having to deal with acutely ill patients, or in the evenings when perhaps it's only you on and you maybe only have one senior to refer to. That's quite daunting, which isn't really helped by the fact that I won't have done my advanced life support course by the time I start."* (WPS18, first interview, quartile 1)

> *"Well yes, late at night and also the fact that the Registrars [have] been busy and then just got to bed and you've bleeped them, they may not be in a hurry and you might be like, I don't know what to do."* (WPS, first interview, quartile 2)

> *"The only things I'm particularly concerned about are beginning the on-calls, because I'm not sure how much, you know, how much I'll be able to do."* (WPS23, first interview, quartile 4)

> *"I was a bit worried about over weekends and on call and stuff because you start to say, oh, I'm going to be the only person in the hospital, but I've come to realise that is actually not the case and there's always going to be people around."* (WPS6, first interview, quartile 3)

Time management and prioritising workload

There were very few comments about time management but some indication that final year students were not prepared.

> *"I suppose it is like you mentioned time management. That is a concern. I don't want to end up with ten patients still to see and that finished an hour ago."* (WPS20, first interview, quartile 4)

Some final year students did not feel prepared for prioritising their workload.

> *"I don't feel fully prepared for being rushed off my feet with numerous things going on, because obviously as a student you're not really in that situation, so that will be a big change. Certainly having to think about so many different things, and prioritise and delegate if you have to or ask for help. I know what's coming, I'm not overly prepared for it but I realise it's going to be the way life is most days or a lot of the time. You can only really be prepared for that when you actually start the job itself."* (WPS24, first interview, quartile 4)

> *"And, now that I've started my shadowing, I'm happy with where things are kept on the ward so far. I'm sure I've still got a lot to learn in that respect, but I'm happy with where forms are when they need to be filled out, and then happy where to put them once they're filled out. I'm pretty confident that I know the hospital reasonably well, and I know where the X-ray department is, I know where A&E is: it's all very familiar. I feel quite prepared in that respect. I can't think of anything else just at the moment."* (WPS5, first interview, quartile 1)

Handover

There were no comments made about handover by final year students.

10.2.2 Experience of Warwick primary sample

Ward work

There were few comments specifically about adjusting to ward work in the first placement, and these were mainly related to the wide variety of clinical problems and what F1s are allowed to prescribe.

> *"I don't feel that medical school prepares you at all for any sort of ward work in any sort of way really… When you are actually covering wards and you are dealing with such a variety of different problems, like hypertension, you don't quite know what you are allowed to do. I just felt a bit like, well I don't know am I allowed to prescribe this? The emphasis has always been well you can always look it up in a book but you are so busy that that is not really, feasible at times".* (WPS3, follow-up, quartile 1)

Paperwork was also not as much of an issue as anticipated, although it may be in part because the learning process was so quick.

> *"You go in having no idea how to do these things, and by the end you're fairly confident and you don't even think about it."* (WPS15, follow-up, quartile 3)

> *"I think the only thing is sometimes you are asked to get an x-ray of a person, and you're thinking, why? Because the forms require a reason for an x-ray, and sometimes you're not completely aware why you need an x-ray. And they come back to you saying, why do you want an x-ray?"* (WPS17, follow-up, quartile 3)

The major paperwork for which some F1s were not prepared was death certification.

> *"One thing I found a bit difficult was death certification ...a couple of times I had to talk to the coroner about difficult cases if it wasn't certain what the cause of death was … and that made it more difficult and then I had to explain to the family why the certificate wasn't being given straight away and that opened a whole other minefield up. So yeah it was a new experience to be dealing with legal document such as that. I got used to that as I went along".* (WPS9, follow-up, quartile 2)

On call

Overall, most F1s commented that they were not prepared for being on call or for the long hours related to on call.

> *"I suppose the long hours were something we weren't particularly prepared for, and within that, the responsibility of when you do on calls, there's a skeleton team. ...you can find that you have to make a lot of decisions on your own, and maybe I wasn't quite prepared for that. I maybe sort of expected someone might be there to hold my hand. But practically, I think we were given everything we needed. It was just learning to use it in a way that was appropriate, and being able to apply it in that sense".* (WPS15, follow-up, quartile 3)

> *"I think the most difficult one is out of hours. After five o'clock you need to phone up the on call biochemist or haematologist, to get them to come into the hospital in order to do a blood test...having to put [the test] on ice and wait for the biochemist to come in from home takes a little longer than you'd have wanted."* (WPS8, follow-up, quartile 2)

Time management and prioritising workload

Most F1s did not comment on time management. Only two F1s said that they were not prepared but they had quickly become more organised.

> *"The quantity of the practical procedures, in general; you're aware of the procedures and how you go about doing them, but doing them on a time limited basis, under time pressure, it's more difficult than the theoretical side of it. So not so much in the procedure itself, more in the surrounding issues. In a real context it's slightly different from doing it under supervision."* (WPS4, follow-up, quartile 1)

> *"Initially I found it quite hard. I had lots of bits of paper with scrawled notes on but I managed to become a bit more organised and I'd write things down neatly and start with the most sick patients and I realise that particularly at the weekends you might have 50 venflons to put in but you have to see to the sick patient before you can think about that. I thought I managed that quite well."* (WPS9, follow-up, quartile 2)

By the time F1s had started work most felt prepared for prioritising their workload, although the dynamic context and the different priorities of other staff are also recognised.

> *"Generally quite easy I think. You do know what's important that has to be done first."* (WPS24, follow-up, quartile 4)

> *"…You soon realise which patients are calling and which ones need to be seen, which jobs can be left, and which things aren't really essential, but obviously need doing…."* (WPS11, follow-up, quartile 2)

> *"I am getting better at it. In general it is not too difficult and it is quite easy to work things out as long as there isn't someone else trying to get you to re-prioritise something as they think it is more important."* (WPS12, follow-up, quartile 2)

Handover

Most F1s did not comment on handover and only two F1s reported not being prepared for handover of patients, mainly because there was no mechanism in place.

> *"Only on a Friday if you wanted to hand over sick patients for the weekend. There wasn't really a mechanism for that."* (WPS18, follow-up, quartile 1)

> *"Handovers are good in that you can say, this needs to be done, watch out for this patient, be aware of this...[but] it might be that the person who's doing this looks and thinks...I've got a patient who's dying, I've got a patient who's sick, I've got this...so it's fourth down the list...it means that you come back the next day and think, oh, if I'd stayed an extra half an hour it would have been fine."* (WPS15, follow-up, quartile 3)

Teaching

Most F1s felt prepared for teaching. Only a few felt unprepared.

> *"What I wasn't as prepared for is I spend quite a lot of time with the pre-final students, the people that are in the run up to their final exams now. And they'll ask me things that I just don't have the answers for. And sometimes they seem to know an awful lot about areas that I don't. I think you're never quite prepared to be in a position where the people that you're supposed to be teaching know more about the subject than you do. But I just think it's about learning to be quite honest; if you don't know, say you don't know. At least that way when you say something that you do know, they listen to you."* (WPS20, follow-up, quartile 4)

10.2.3 Warwick Triangulation

Ward work

The main areas of concern identified by respondents was the F1s' adaptation to hospital procedures and protocols. This was linked to variations between sites.

> *"The areas where I am perhaps concerned is the practical side of things, starting in a new place, general infrastructure and how to order this and that, that might be a concern."* (W Undergraduate Tutor 9)

> *"Where they aren't perhaps as well prepared, they are not aware of guidelines and things so if somebody comes in with a DVT or angina there's a knowledge of guidelines of what they should be doing and I suspect that because they go to 3 trusts and the guidelines differ between trusts."* (W Key Manager 1)

There were only two comments from these respondents about paperwork apart from completion of portfolios (dealt with in a later chapter).

> *"I think some of the professional tasks like cremation forms, discussions with the coroner, consent forms, things like that can also be better and we are working on that."* (W Educational Supervisor 5)

> *"They really should know how to prescribe blood safely. … A lot of them don't understand the importance of filling in a blood transfusion request properly."* (W Undergraduate Tutor 1)

On call

There was general concern from this group of respondents that F1s are not well prepared for being on call and at night and saw this as a difficulty.

> *"I think what they should be made to do is go on call...I do encourage final year medical students to go on my takes which most of them do but say I am on call at the weekend, you don't see them. I think if they were around more on call they would learn more, certainly dealing with acute situations."* (W Educational Supervisor 3)

> *"There's quite a big area of night work and responsibility when back up is not so easily available at night. I suppose some specialties they're probably more prepared for than others depending on their previous experience. The fear of the unknown and the night work, and that aspect of the job is difficult. Prioritising work and coping with the work load is a very variable thing. Obviously some are better able to cope with this than others. I suppose there's a small minority that really don't cope. It's usually only when they actually start."* (W Key Manager 3)

Time management and prioritising workload

Most respondents felt that F1s were not prepared for the time management that their job would involve. There was concern that some F1s were not prepared for prioritising their workload, mainly because of uncertainty about what there is to do and the sheer volume of work required.

> *"They can be slow at prioritising their work and find it difficult to cope with what's required. I think there's uncertainty about what there is to do. Work as a house officer is a much more time limited version of what they do as a junior and they find it difficult to compress their work."* (W Key Manager 3)

> *"I think they are not as effective and efficient at the planning and decision making, the day-to-day management that makes the unit run smoothly, sort of co-ordinating investigations."* (W Undergraduate Tutor 4)

> *"When 5 o'clock comes you've got to know what to do first and then leave it, because you don't really want to leave stuff for the on call team which isn't really the right thing to do."* (W Undergraduate Tutor 4)

> *"…and they don't know how to keep notes, and probably don't know how to organise their time or to pop and see the person following and seeing them in action how they programme their time. Which is quite an important thing to do for a house officer, and knowing when to leave things for tomorrow. When 5 o'clock comes you've got to know what to do first and then leave it because you don't really want to leave stuff for the on call team which isn't really the right thing to do."* (W Undergraduate Tutor 4)

The lack of planning and time management was also seen to impact on continuity of patient care and this was a potential problem.

> *"But if we haven't got a view throughout the training that continuity of care, continuity of responsibility is important, when the day comes and they get their hands on the magic job, that will come as a great shock and it is beginning to happen a little bit."* (W Undergraduate Tutor 4)

> *"I think that the F1s are really well protected ... but if they say that they don't know something because they weren't there, that answer was what I might get from a nurse who had been away. It is their responsibility to know what's happening to the patients even if they weren't there when something was done. The good ones do*

make sure that they know what's going on but some of them don't." (W Educational Supervisor 7)

Handover

There were no comments from this group of respondents about handover.

10.2.4 Summary of 'Managing the duties of a doctor' for Warwick graduates

Overall, medical graduates suggested that feeling unprepared was mainly due to not yet having worked in the hospital, except as a student. They expressed concerns about lack of preparedness for the range of hospital procedures they would need to know about and not having had access to computer systems to view x-rays and scans for example. They were also concerned about being on call, time management, working in unfamiliar hospitals and departments and dealing with paperwork including form filling and writing up patients' notes.

At follow-up the F1s reported that medical school had not prepared them for working on the wards and the range of patients' problems that they would need to respond to. Making decisions, especially when on call, was a concern for F1s, as was handover. However, most of the F1s reported that managing time, prioritising work and understanding hospital procedures had not been an issue.

The clinical view gained from the triangulation data supported the concerns about lack of preparedness for doing on call, some commenting that this should be compulsory during training. Some commented on F1s' hesitancy to commit themselves and make a clinical decision. They emphasised the importance of the shadowing period and being on a steep learning curve having to deal with real patients and their relatives in real situations. The clinicians also commented on their poor ability to manage time and to prioritise their work, lack of knowledge about hospital procedures and guidelines – which contrasts with the F1s' own view.

F1s and clinicians agreed that ward work generally and on call specifically were areas of weakness when starting work as an F1.

10.3 Glasgow Graduates

10.3.1 Expectations of Glasgow primary sample

Ward work

Although some students expressed concern about working under time pressures, many felt that they were well prepared in terms of time management.

> *"I don't envisage too much problem with organisation because I am quite an organised person. I think actually we have been quite well prepared over the last five years. .. And time management too, I don't think that will be an issue but I don't know if that's personal"* (GPS4, first interview, quartile 1)

On call

Few of the respondents mentioned being on call as a specific area of lack of preparedness but those who did assumed that it would be a concern for all and to be expected.

> *I guess….oh I don't know if really quite worried is probably ….no… I'm ready for it. I want to do it. Yes…nights worry me, but then I'm sure they worry everyone".* (GPS11, first interview, quartile 1)

Handover

Handover was something that some students mentioned not being well prepared for when specifically asked about it. However they were not sure how this could be included in the curriculum.

> *"One of the FY1s said that [handover] was quite an important thing and I don't feel that we've had that much experience of it. But then that would be something I think you would learn with the job. I don't know how they could actually implement that".* (GPS15, first interview, quartile 2)

Working with others was an area that respondents felt had been well covered, although some expressed a feeling that it may have been covered too much.

> *"We've had quite a lot of exposure to the other professions and you know OT and physios and phlebotomists and people like that as we have gone through so I'm quite happy."* (GPS1, first interview, quartile 2)

> *"I think Glasgow University Medical School have done it to death so I think you would be prepared for working in a team because that is the buzz word, teamwork, you know, multi-disciplinary team and things like that."* (GPS12, first interview, quartile 2)

10.3.2 Experience of Glasgow primary sample

Ward work

Almost all F1s in this sample mentioned difficulties in getting to grips with the way different hospitals and different departments within hospitals work. Problems mentioned included not knowing how to request tests, initial difficulties with complex computer systems and knowing how to approach particular staff (such as radiologists).

> *"There was a lot of things like the blood systems were very, very strange system to use so getting to grips with that was pretty hard going in the first few weeks. I think that's more a shadowing issue, you kind of need longer in shadowing to get to grips on how to order bloods and as a student, I mean with the students I've had on the ward, I've tried to specifically show them this is an FY1 task."* (GPS16, follow-up, quartile 2)

> *"I did really feel prepared for my next placement but I think this has been totally different and I honestly naively thought because it was in the same district under the same region, under Greater Glasgow, I thought most things would be exactly the same but everything's completely different, it's not prepared me at all."* (GPS19, follow-up, quartile 1)

> *"I mean I don't really think we're prepared just for the general ward work"* (GPS14, follow-up, quartile 1)

There was recognition that even when some of these issues are covered in the induction, some of that information is bound to be forgotten and can only really be learnt on the job. Two trainees felt that a longer shadowing period might help, but with such varied ways of doing things it was recognised that the university course could not do much to prepare one.

However some respondents' comments suggest that Glasgow graduates are willing to ask if they do not know something.

> *"…again that was a case of you know just struggle through and find your feet. Initially you know it could be very time consuming because you're making lots of calls to find out how to do something. But I guess coming back to the old thing of being taught well, how to teach yourselves or how to learn, you just find out…you know you can manage that quite easily"* (GPS19, follow-up, quartile 1)

> *"I usually phone the consultant's secretary to ask the best way to refer a patient, some people like phone calls, some want you to go and find them personally, other people wasn't a letter, so I phone the secretary to find out…I would phone up the labs if I wasn't sure for example, which bottle a blood sample should go into for a test I hadn't done before, I would phone the lab and ask them about it. I pretty much hope that everybody I did get hold of I would then write down what they told me so I had it"* (GPS1, follow-up, quartile 2)

On call

Some respondents did not feel prepared for on-call but felt that this would come with experience rather than something that the medical school could prepare them for.

> *"I think your first weekend on call; you just don't feel prepared…I don't think any more time at uni would make you any more prepared for that I just think it's just something you have to get on with"* (GPS2, follow-up, quartile 4)

Time management and prioritising workload

All but two of the respondents reported feeling unprepared for prioritising their work and managing time effectively. The speed with which they were required to complete tasks and the sheer volume of tasks were cited as difficulties, as well as the competing demands of other team members - all with tasks they want completed and differing priorities. The unpredictability of the workplace was also noted as a factor (a patient suddenly becoming acutely unwell would generate new tasks and require a reordering of existing tasks). Two noted that they were getting a lot better at prioritising some jobs over others; one noted that this was an area for which university could not really prepare you.

> *"I think as well initially I might struggle to prioritise my jobs, you know, try and work through a list rather than saying like well, this needs to be done in that order."* (GPS14, follow-up, quartile 1)

> *"I don't know how you could be more prepared for the volume of work, I find it really overwhelming and extremely stressful."* (GPS19, follow-up, quartile 1)

> *"That's something I'm still kind of struggling with. I know the stuff that has to be done before 5 o'clock and things that are really urgent and need to be I kind of know that, but I think that's a really kind of big challenge and I think I'm just starting to get better at it."* (GPS2, follow-up, quartile 4)

Handover

Experience of handover varied from hospital to hospital; some commented that they had not had experience of handover in their first FY1 placement whilst others commented that the size of the hospital and ward made a difference to the type of handover.

> *"I haven't had any experience of handing over and it was something that I find quite difficult to do and probably still find it a little bit difficult to do is knowing what the correct information out of the patient's history that the person handing them on to needs to know. I think I'm starting to learn a little more and getting a bit better at it, but it was something that I did find difficult and probably still do find quite difficult to do"* (GPS18, follow-up, quartile 4)

> *"Not so much [difficulty with handover] because it's quite a small hospital. There would be one person that did like the weekends… because its small if there is somebody who was particularly ill we would actually just go directly and see the person and say, "this is the person you have to look at over the weekend, this could happen"* (GPS2, follow-up, quartile 4)

Teaching

Respondents had not had very much experience of teaching medical graduates but those who had felt they had been helpful and been able to offer advice to the student.

> *"...this is my first experience of having medical students on the ward this week...,I was able to suggest a couple of books that might be good to look over and that I had found helpful as an undergraduate for explaining the finer details"* (GPS19, follow-up, quartile 1)

> *"Have taught some medical students, and really not very prepared at all. The only thing you felt you were prepared for was giving them advice as to what things they would need when they started work and I felt that was particular important to pass on to them."* (GPS3, follow-up, quartile 2)

10.3.3 Glasgow Triangulation

The F1s were considered to be prepared for managing some duties of a doctor better than others.

The PBL process used in Glasgow was considered to have helped F1s in some aspects of their jobs.

> *"They are very good at IT skills, very good at presentation skills, and quite assertive and I think certainly with the PBL side of things, I think they have become quite adept at working through problems and have become quite used to that process."* (G Key Manager 3)

Ward work/Hospital Procedures including Paperwork

Although few respondents mentioned the specifics of ward work there was a general impression that the FY1s were not as well prepared as they could be.

> *"I think they are not particularly well prepared. I think they could be better prepared I think. They could be more familiar with the ward environment, they could be more familiar with the way a ward works and they could probably be more familiar with assessments of patients to be honest".* (G Undergraduate Tutor 9)

However this was attributed as much to individual enthusiasm for the post as to their undergraduate preparation.

> *"I think if they are not very enthusiastic, then they can find themselves unprepared for the ward ritual and for the practical day-to-day, you know, how I organise a chest x-ray type of thing".* (G Foundation Year Educational Supervisor 9).

On call

This was confirmed as part of the job that caused anxiety among the FY1s although they were felt to be prepared.

> *"They inevitably find as anyone does in this situation that when they are faced with acute on-call type work in the evenings, on call receiving there is a challenge but I think, that they're adequately prepared for those acute things."* (G Foundation Year Educational Supervisor 5)

Lack of adequate supervision at night was felt to be a factor in their anxiety.

> *"In hospital they are very well supervised, apart from at night…. That's the fear where they feel most exposed"* (G Foundation Year Educational Supervisor 4)

Time management and prioritising workload

Time management was generally considered an area where FY1s were identified as having problems.

> *"…and they need to learn how to manage their time and I think again they can manage their time as a student because there is no time pressure on them or there is limited time pressure on them but when they find themselves in an environment where they have to get certain tasks done within a time limit and they have somebody like me coming up their back going I need this result, I think some of them will struggle with that."* (G Educational Supervisor 6).

However this was attributed to changes in the postgraduate training system rather than to undergraduate training.

> *"One of the things that was hostile on the ward is the continuity of care, they don't have the skills of time management, and I think that is the big difference between generations just now and generations that worked for a firm as a JHO.*
>
> *Is that a problem in their undergraduate training or is that a problem caused by the different system in foundation?* (Interviewer)
>
> *It's the different system in foundation"* (G Portfolio Assessor 1)

Prioritising workload was considered a problem by two respondents.

> *"The thing we really have found is a problem for them is trying to prioritise a lot of them are well prepared for what shouldn't I do for this individual"* (G Portfolio Assessor 2)

The problems with time management and prioritising workload were linked to "stress" in FY1 doctors.

> *"But I started back to work in July and by mid August I had had 3 episodes of tea and sympathy and cake at 4.30 where they were just, they felt overwhelmed by little things, by little tasks, if they had organised their day a little more effectively it would not have been so overwhelming."* (G Educational Supervisor 6)
>
> *"I don't think they cope with stress particularly well some of them, you know, with being, you know, multi-tasking, prioritising."* (G Key Manager 5)

Handover

No respondents mentioned this as a specific area where FY1s were unprepared.

10.3.4 Summary of 'Managing the duties of a doctor' for Glasgow graduates

The medical graduates reported that handover was something they did not feel well prepared for. Although graduates expressed concerns over working under pressure and dealing with acute patients, they felt they were well prepared for time management - although when faced with it (see below) realised they were not prepared.

At follow-up F1s mostly reported difficulty in adjusting to the variety of ways the different departments and hospitals functioned. This included not being familiar with different hospital procedures, computer systems and policies. Some F1s would have preferred a longer shadowing period. Most F1s reported that they were not prepared for prioritising their work or managing their time effectively. Several F1s reported concerns about being on call, making clinical decisions and managing very sick patients. On call was particularly associated with increased feelings of stress.

The clinical view gained from the triangulation data agreed with the F1s' concerns about their lack of ability to prioritise work and manage time effectively – at times leading to considerable stress. Managing patients who are acutely ill was another area of concern for the clinicians, some of whom considered additional teaching on this would be helpful in the final year.

Paperwork was not highlighted by the medical graduates as a potential problem and the supervisors who worked with FY1s did not perceive it as a significant problem with Glasgow graduates.

10.4 'Managing the duties of a doctor': common themes and differences between sites

This theme has combined many aspects of clinical practice. It has also raised concerns over lack of preparedness for practice. All three medical schools have reported similar difficulties reflected in the perceptions of medical graduates both before and after starting work and triangulated with the perceptions of the clinicians who have taught, supervised and managed them.

Areas reflecting lack of preparedness are generally with regard to gaining experience on the wards and becoming familiar with hospital practices and administrative issues. Areas of specific concern were: on call, the management of acutely ill patients, prioritising work and managing time effectively. Dealing with all the necessary paperwork was an issue for Newcastle and Warwick graduates, but it did not seem to be raised either by the F1s or the clinicians at Glasgow. A lack of a finding here might reflect a difference following the PBL course as some F1s reported that they learned to find things out for themselves.

The Glasgow medical graduates assessed that they were good at time management prior to starting work but once working they re-assessed their skills and found they were not as prepared as they thought. In contrast Newcastle students were concerned about time management but at follow-up reported that this was not a problem for them. However the clinicians working with the Newcastle F1s reported that prioritising workload and time management *had* been an issue. This study highlights the importance of collecting data at different time points and from different perspectives to gain a better overview of where the issues are.

10.5 Commentary on theme from the research team Professors from each medical school

There was agreement that the core theme emerging from the data indicated a need for more 'on the job' training. The current new doctors have had less time in clinical practice and in direct patient contact as students than was the case in the past. There are many reasons for this including the increase in the number of medical students, also shorter hospital stays, and changes in organisation of care, for example the demise of the 'firm' (with patients usually under the care of the same team based in more or less the same physical location) and patients 'farmed out' across a number of wards. This has made it difficult to develop a sense of 'belonging', culminating in students feeling like strangers.

In the past medical students in many medical schools were permitted to do locums from the third year and by the time they graduated would probably have done the job of a house officer, albeit supervised, on one or more occasions. Also, when house officers started work they generally became part of a 'firm'.

In educational theory terms this is about '*legitimate peripheral participation'* and *situated learning*[1]*,* which students and F1s are less likely to experience. For F1s this may be exacerbated by working shorter hours (EWTD) and shift work, where continuity is lost.

Glasgow medical school have already planned to expand the time spent in clinical practice. In 2009 Glasgow medical school will introduce a 10 week block after final exams called 'Preparation for Practice'. This will include campus based sessions on areas identified as weak e.g. prescribing, acute management, "life skills" (time management, self-care etc), advanced clinical skills and legal and ethical issues. Sixty per cent of the time will be spent in shadowing the FY1 post where they will start working.

Warwick are considering similar changes to Advanced Clinical Practice, with emphasis on clinical decision making and responsibilities on-call.

Reference

[1] Lave J and Wenger E. *Situated learning: legitimate peripheral participation.* Cambridge, Cambridge University Press. 1991

Chapter 11. Knowledge

Analysis identified specific areas where new graduates felt their knowledge was lacking, both in clinical and non-clinical areas. Three main areas of knowledge were identified:

- Anatomy
- Legal and ethical issues
- Knowledge of the NHS

11.1 Newcastle graduates

11.1.1 Expectations of Newcastle Primary Sample

Anatomy

Respondents identified anatomy as a specific knowledge gap as they looked forward to starting work. They generally felt well prepared for basic anatomy but were less sure of the adequacy of their knowledge for the surgical setting. Perceptions of medical graduates were perhaps influenced by a perceived stereotyping of Newcastle graduates' knowledge of anatomy by surgeons.

> *"I don't feel very confident at all on anatomy, I think it's all the consultants seem to see it as a bit of a joke, like 'Newcastle medics' anatomy' because we're all clueless basically".* (NPS93, first interview, quartile 3)

The location of basic anatomical science in the first two years was felt by some to be too distanced from beginning clinical practice, and meant that some things were forgotten by the end of the course. Some suggested that a refresher course would be useful.

> *"I think the teaching we had [in the second year] was fantastic, it was really good, I felt very confident … but then we should have had refresher courses; whether it should have been placed higher up on the agenda in the clinical year, I don't know, but I feel now very weak in anatomy".* (NPS194, first interview, quartile 1)

11.1.2 Experience of Newcastle Primary Sample

Anatomy

Generally the F1s reported that they had found their knowledge of anatomy to be sufficient for their needs during their first placement. There were some F1s who revised the relevant sections as they needed to and others who generally thought their knowledge should have been better, particularly in surgery.

> *"Well I think it's just the surgeons want to criticise. I think it's probably good enough for what I need to know at this stage"* (NPS8, follow-up, quartile 4)

> *"I mean my anatomy isn't marvellous but I have been reading up on things you know, like the first couple of weeks if I'd heard people talking about gallstones and stuff, I'd revise the anatomy but I mean if I hadn't have looked at that then I probably would have forgotten it all"* (NPS108, follow-up, quartile 3)

> *"No, no definitely, not [sufficient], that's something I have had to study a lot, so many things that you've completely lost since second year"* (NPS209, follow-up, quartile 1)

Legal and ethical issues

Generally the F1s felt they were prepared for the ethical and legal issues they needed to know about when they started work, but recognised this was 'light touch'. They soon became

aware that they were on a steep learning curve and would need to become more familiar with many other legal and ethical issues they had only just been acquainted with.

Legal and ethical issues were discussed with reference to taking consent from patients, making decisions on treatment, and in palliative care. Doctors can only take consent for procedures they are able to perform, so this is limited to practical procedures that were part of their routine tasks, and the F1s were aware of this legal limitation.

> *"Consent, I don't think I've consented for an awful lot more than I did as a med student in terms of asking consent ...I mean I'm not consenting for anything, I'm not consenting for surgeries and things like that."* (NPS8, follow-up, quartile 4)

Most F1s felt that while ethical issues had been discussed at medical school there was much more to learn. There were also occasions when they found themselves on their own and having to make decisions that a senior should make.

> *"Kind of [prepared]. I mean we were taught on it and we were taught on using the palliative service and I mean we did have a little bit. But things like capacity …all the laws have kind of changed this year after we qualified"* (NPS139, follow-up, quartile 2)

> *"We had a lot of sessions where we'd discuss or debate what was the best thing to do in certain situations and what wasn't. But there were never really any kind of practical answers for what you should do in situations like that, apart from to discuss it with a senior. But at three o'clock in the morning it's not always possible to get a senior to come and sort it out for you. And so a lot of the kind of teaching seemed to be more discussions rather than practical kind of solutions to problems like that"* (NPS18, follow-up, quartile 4)

The F1s reported being more aware of their responsibility to document everything and an awareness of protecting patients and themselves from potential problems later.

> *"In A & E … most of the procedures in are fairly straightforward where I was taking blood and things. You do end up doing like rectal examinations quite often and so you just make sure that you get a chaperone to protect you and the patient and document the whole thing"* (NPS65, follow-up, quartile 3)

> *"I definitely have thought more about documenting things – because I didn't really appreciate as a student. Having started work I make sure now that I document everything, every conversation, anything that's been said to the patient, just to cover anything that might arise from that."* (NPS143, follow-up, quartile 2)

The consequences of this had been experienced by two F1s who were involved in enquiries following complaints about other members of staff. The experiences of the two were different, with one experiencing support from their organisation, the other being uncertain who they could trust to give them good advice.

> ***"**We've had an incident already that I was involved in…this lady ended up dying. The family complained and ...they ended up taking statements from the nursing staff and myself and the other doctors that were around… I had treated her when others wouldn't have treated her, when actually the SHO was just like ah leave it it'll be fine and I was well no it wasn't. And I documented what I had done, so I was glad that I had done all that."* (NPS224, follow-up, quartile 1)

> *"I was the first one to see the patient on admission ...I was asked to do a like a statement as a witness of having seen the patient before they died… [the Trust] called me actually quite a few times to let me know that they were quite supportive… I would say the consultant was very supportive..."* (NPS182, follow-up, quartile 2)

Knowledge of the NHS

Respondents were asked the broad question "How easy or difficult was it to gain an understanding of how the NHS works?". As a result this question was interpreted and

answered in various ways. Some F1s focused on the large NHS organisation, others on how they experienced it in their job and others on how it related to them as trainees.

Gaining a fuller understanding of the largest employer in Europe is quite a task and it would be reasonable to expect the main learning would be focused on their work within the organisation.

> *"I managed to get a better understanding because I went on a course that's compulsory in our Trust called the ITAL course…It's very specific I think to the [Trust] …they put all the F1s on that and on the course we managed to understand about NHS workings. I knew a bit about it but not that much given the variety of our house working."* (NPS182, follow-up, quartile 2)

Some answered the question in relation to their recent hospital experience.

> *"I don't know the grand scheme of how the NHS works. Now I've got a good idea about what happens with outpatient referrals"* (NPS108, follow-up, quartile 3)

> *"As a whole I am still not sure that I know. I think you kind of start with your hospital and then work outwards. So I think I know far more about how Sunderland itself works than about sort of national NHS structure"* (NPS22, follow-up, quartile 4).

Some respondents talked about how they had become more aware of the different functions of the NHS and the way their hospital relates to other providers.

> *"You know how it's broken down into sort of primary care, secondary care what everybody's role is, so I think from that respect probably I would say yes I know quite well how it works."* (NPS181, follow-up, quartile 2)

> *"There's some discussions going on all the time about people going out to community hospitals for rehab or you know interfacing with the GPs, primary care and that kind of thing so I think you pick up an idea of how the system works on the local scale."* (NPS24, follow-up, quartile 4)

> *"...how we interact with GPs and things and what they're responsible for and what we're responsible for in terms of patients' care ...how to arrange follow up and things like that ...they're quite good at pointing out what other services are available to patients ...how to transfer people to continue care"* (NPS9, follow-up, quartile 4)

This awareness of being part of a complex system also related to other services and agencies, such as social services.

> *"...with experience and sorting things out, knowing how you do, you know, how is like a Social Work referral made for example, you know, because it's not something that you would know about"* (NPS224, follow-up, quartile 4)

Different perspectives from a range of staff with different experience contributed to their learning about the NHS and they shared their experiences of how things were done in other trusts.

> *"...how do certain things get organised and I think it's easy to understand because there's always someone that you can ask… and mostly it's the nurses that can give you a lot of information about that and say "Well, actually, normally what you do is this" because a lot of the, say for example, my SHO, she didn't really know because she came from a different Trust and was only there for four months so you know, she wouldn't necessarily know how it works in the Trust and, and then she could give me her perspective how it would work in the NHS in general so, there was always a variety of people."* (NPS146, follow-up, quartile 2)

11.1.3 Newcastle Triangulation

Anatomy

Some respondents did identify a weakness in anatomical knowledge, but like the trainees felt that a great deal of anatomical knowledge would not be required in F1, and that it would develop through continuing learning and development. They also referred to a difficulty in translating theoretical knowledge into practice.

> *"…they don't actually have the deep understanding of anatomy and physiology …you learn these things when you need them and if you have just done it like rote and not seen a clinical application for it and it is 3 years since you did it you probably have forgotten it anyway"* (N Educational Supervisor 3)

> *"I'm finding that they spend the first two years of their undergraduate careers learning about what I'm actually teaching them in lectures in labs but have absolutely no ability to apply it to the patient that's in front of them…a penny finally drops as to the relevance of why they learnt all of this stuff…"* (N Educational Supervisor 7)

11.1.4 Summary of 'Knowledge' for Newcastle graduates

Anatomy

Anatomy was a topic that came up in the first interviews and was then explored in later interviews. The Newcastle medical graduates generally felt well prepared for basic anatomy but were less confident about the adequacy of their knowledge for a surgical setting. At follow-up the F1s reported that generally their knowledge of anatomy was sufficient for their needs.

Clinical perspectives gained from the triangulation data highlighted that anatomy, like physiology, was a subject whose relevance only became truly apparent and relevant when the knowledge was applied in practice.

Legal and ethical issues

Generally F1s felt prepared for the legal and ethical issues they needed to know about when they started work. However, while most F1s felt legal and ethical issues had been discussed at medical school there was much more to learn. There were occasions when they found themselves without a senior and they needed to make decisions that they felt a senior should make. F1s reported being more aware of their responsibility both to protect patients and, in the event of any future problems, also to protect themselves. A couple of F1s reported needing to make statements following the death of a patient highlighting the steep learning curve.

Knowledge of the NHS

Working in the NHS clearly had increased the F1s' understanding of the organisation, but this was mainly at a service level, understanding how the different parts of the organisation interfaced and how referrals were made rather then gaining a deeper understanding of the structure of the organisation and how it operated at a macro level.

In conclusion, the weak areas identified here related to lack of applied knowledge rather than lack of knowledge *per se*.

11.2 Warwick Graduates

11.2.1 Expectations of Warwick primary sample

Anatomy

Respondents who referred to anatomy felt that their knowledge of anatomy was adequate for the role they would be taking on, but that it would not be sufficient if they were to assist in theatre during a surgical placement:

> *"I quite enjoyed anatomy. I found that the clinical anatomy, such as orthopaedics, sticks with you. So I am not particularly worried about that."* (WPS22, first interview, quartile 4)

> *"I feel throughout my attachments that the surgeons have said your anatomy is not quite up to scratch… I think my day-to-day anatomy for things I would be doing is certainly adequate. I know important structures for any procedures that I might do but were I [needed] to be assisting in theatre I would then find that my anatomy was definitely falling short."* (WPS20, first interview, quartile 4)

11.2.2 Experience of Warwick primary sample

Anatomy

Supporting the comments in the first interviews, there was a strong sense among respondents that for the type of jobs they were doing at this stage their knowledge of anatomy was sufficient, albeit basic. Some of those with a placement in medicine commented that anatomy knowledge was less pertinent to their job.

> *"To be honest I don't really use much anatomy. I have been fully prepared but haven't had any call to use it yet."* (WPS3, follow-up, quartile 1)

Even among those in a surgical placement, there was a sense that their anatomy was sufficient for their first year.

> *"I think, as far as I am concerned, it was sufficient. I didn't want to be a surgeon; I don't need to know the intricacies. But I did know my basic anatomy."* (WPS16, follow-up, quartile 3)

> *"I think for surgery you have to know anatomy very well. But in such a position as House Officer, I think anatomy isn't that important, because you are not operating."* (WPS17, follow-up, quartile 3)

One person in a surgical placement was, however, acutely aware of his or her gaps in knowledge:

> *"When it comes to going and sitting in theatre, quite often you will be asked about anatomy and my anatomy is still way behind what I would have hoped it would be."* (WPS20, follow-up, quartile 4)

Despite having enough basic anatomy knowledge to do the job, some hinted that they were not confident in their overall anatomy knowledge. In part, this was attributed to the way the subject was taught at medical school, but there was also a realisation that more reading might need to be done.

Legal and ethical issues

Some respondents felt, in principle, prepared for legal and ethical issues given the teaching at the medical school, whereas others did feel less prepared or had learned on the job.

However, these issues were an area few respondents had actually come across in their first placement. Obtaining written consent was not something that was expected of F1s if they

had not done the procedures for which written consent was required. Where consent issues were highlighted they related to particular patient groups. One respondent had to make judgement calls with 14 to 16 year olds and another one had to embark on a 'big learning curve' when judging the mental capacity of patients for decisions on artificial feeding.

The legal implications of dealing with documents such as ward notes and discharge letters were experienced by some F1s. One respondent found him or herself in a difficult situation where uncertainties about the cause of death meant delays in issuing the death certificate and explaining this to the family, which in turn resulted in further issues.

> *"Yeah, I did feel prepared for that. Pointing them in the right direction if they wanted to speak to anyone, and I think consent, I wasn't trained in consent, so I didn't have to consent anyone. ...I didn't do official consent, as in for surgery or other invasive procedures. You had to have proper training for that."* (WPS23, follow up, quartile 4)

> *"Bit of a grey area, but you just asked people when things came up."* (WPS18, follow up, quartile 1)

Knowledge of the NHS

Understanding how the NHS works was something that some found fairly easy whereas others, who had perhaps more the NHS as a whole in mind, thought of it as difficult or complicated. There was certainly some recognition that tutorials, inductions and teaching had helped them to understand the NHS:

> *"That wasn't too difficult to understand as we have been taught a lot about that at medical school."* (WPS19, follow-up, quartile 4)

In some of the comments a rather critical assessment of the NHS became apparent. The NHS was perceived to be an 'archaic machine', regarded as 'fairly disorganised' or seen as 'working on the good will of a lot of people'. Yet there is also a realisation that not everything is fully understood as yet.

> *"I think I understand but it's quite complicated, so I don't know everything."* (WPS14, follow-up, quartile 3)

Others found the system rather difficult to understand and, for the time being, focused on the issues and processes that mattered to them, including the role of the NHS as a training organisation.

> *"MTAS gets disbanded, so therefore we've got to try and understand it completely anew. So actually how the NHS works? I am not completely sure of that."* (WPS8, follow-up, quartile 2)

> *"Oh that's incredibly difficult. I wouldn't even attempt to claim to know how the NHS works. As a House Officer you are open to the minimum input. You see the frustrations of other people, but this isn't something that really involves you. "*(WPS20, follow-up, quartile 4)

> *"I am still not sure how the NHS works, to be honest. There are rules and regulations, there are guidelines, policies, protocols, some of which you have to follow, some of which you don't have to follow, some of which you don't know even exist. Everyone has his or her own policies, and sometimes agenda, i.e. this is what I need to do, this is what I am going to do. I am not going to help anyone else until it is done."* (WPS15, follow-up, quartile 3)

11.2.3 Warwick Triangulation

Anatomy

Very few respondents mentioned anatomy but one thought that F1s were not prepared.

> *"Well let's see, one didn't know where the adenoids were, which was something they really should have known."* (W Undergraduate Tutor 6)

Knowledge of the NHS

Respondents thought that not being prepared for working in the NHS was not necessarily a reflection of training, but was probably a reflection of how the NHS has changed.

> *"The thing is it isn't clear cut I guess because there's all sorts of situations in the NHS and the way it's designed and it's falling short. So whether it's actually just a training issue, or whether it's more of a delivery issue, that might be a problem… I don't know, I'm concerned that it's the shift system that does it. But having said it's very significantly impacting directly on the patient, no question."* (W Undergraduate Tutor 8)

> *"I worked and did these jobs in the old system and I've worked with consultants. And I know there's consultants who will pull the juniors up when I was there so I don't believe it's down to the individual characters who are monitoring these people. It's something to do with system and how it's changed."* (W Undergraduate Tutor 9)

11.2.4 Summary of 'Knowledge' for Warwick graduates

Anatomy

Medical graduates felt that their knowledge of anatomy was generally sufficient for their requirements, although questioned this for surgical placements. At follow-up F1s reported that their anatomy knowledge had been sufficient, albeit basic.

Few clinicians referred to anatomy in the triangulation data, and only one reported that F1s' knowledge was below satisfactory.

Legal and ethical issues

F1s gave mixed reports in terms of how prepared they felt they were to deal with these issues. Most F1s had no particular problems, but some had already encountered quite complex issues and would have preferred to have had more teaching on this.

Knowledge of the NHS

F1s reported that knowledge of the NHS organisation was complex or difficult to understand at the macro level but gaining knowledge of how it worked on a local level was easy. The clinicians noted that not being prepared for working in the NHS was not necessarily a reflection on training but was more likely to be a reflection on how the NHS has changed and where changes were made to service delivery and that this may have made training more difficult.

In conclusion, the weak areas identified here related to problems with applying knowledge rather than a lack of declarative knowledge *per se*.

11.3 Glasgow Graduates

11.3.1 Expectations of Glasgow primary sample

Anatomy

A few respondents mentioned anatomy spontaneously but other students were specifically asked about it and admitted this was an area of weakness.

> *"I feel completely unprepared for anatomy".* (GPS20, first interview, quartile 2)

Some respondents felt the amount of anatomy was right but that surgeons emphasized their lack of knowledge.

> *"I think they have got the balance more or less right. They could have done a wee bit more. If you are going into a surgery block they tell you continuously how you know nothing. If you go into Medicine they tell you that you know more than you should, so…it really depends on what block you are doing, but I don't feel… I think any lack of anatomy I have is not going to cause a problem as a doctor".* (GPS16, first interview, quartile 2)

Others were not too concerned about the requirements for anatomical knowledge in their F1 post, seeing it as something which is only relevant to longer term career plans.

> *"Its very much postgraduate learning, it's if you want to be a surgeon you need to know anatomy…but you don't need to have an in-depth anatomy of all sorts of different things"* (GPS6, first interview, quartile 3).

And yet other students felt that the learning opportunities were there in Glasgow but students didn't always take them or had forgotten a lot by the time they got to year 5.

> *"I know a lot of people are very quick to criticise the anatomy at Glasgow, but I always found it quite advantageous. ...I think it depends on what you took away from that, like a lot of students will say we didn't learn much, but it was a three hour session and I can assure you that most of the kids were out of there within an hour/hour and a half, but you could stay and stay with your cadaver and learn or you could go home and learn, the opportunity to learn was there"* (GPS3, first interview, quartile 2)
>
> *"Well we learned it's something that has been and gone I think"* (GPS4, first interview, quartile 1)

11.3.2 Experience of Glasgow primary sample

Anatomy

Some respondents felt that their knowledge was sufficient for the job they had been doing, but there was an awareness that when they came to do surgery or when they moved into an F2 post their knowledge of anatomy might be found wanting:

> *"I don't feel like I've used any anatomy at all. I've done a medical job and now I'm just moving into a surgical job, so that might change. But I don't feel like I've used any really, anatomy."* (GPS10, follow-up, quartile 1)
>
> *"As a junior you're very much the ward donkey and you get all the jobs, you get all the bloods, and it's not really required for you to know… I've known enough anatomy to do what I need to do to manage unwell people when I'm on call and on nights and things like that."* (GPS14, follow-up, quartile 1)

Some did feel though that that their knowledge of anatomy was insufficient even for the role of F1:

> *"No, my anatomy is really poor. I think you kind of get by but I'd say its one of the things that I keep thinking to myself that I have to do more studying on."* (GPS2, follow-up, quartile 4)

Some mentioned anatomy as a particular failing of the Glasgow course – one drawing comparisons with the medical course at another medical school in Scotland:

> *"Myself and one of my other colleagues have been trying to go into theatre…And I find that in that situation my anatomy is absolutely, completely inadequate. I'm also intending to do the MRCS in April … I find that from the Glasgow course we don't get taught enough basic sciences, I think that it's going to be significantly harder for me, from a Glasgow course, than if I'd been on any other course. I think in other courses… I mean, one of my particular friends has actually graduated from [X] Medical School. And her level of basic knowledge is far superior and even just applying her basic knowledge to things, she can work things out a lot better than I can because she's got the background knowledge of it"* (GPS17, follow-up, quartile 1)

In contrast to this, however, two respondents felt that they had learned enough anatomy at medical school, both noting that it had been well taught – one referring to it as a 'hot topic' at university (GPS13, follow-up, quartile 2).

Legal and ethical issues

Several respondents reported that they felt unprepared in this area and in particular consenting patients. Respondents commented that they were often unsure whether they were legally allowed to consent patients. However two respondents commented that they felt that it had become clearer over time and with experience.

> *"I don't think that I'm that well prepared. I don't have all the facts and figures to hand. I know roughly what the complications are and the risks but I certainly don't know in terms of statistics and so yes that was a bit of an issue – consenting"* (GPS19, follow-up, quartile 1)

> *"I think that's another thing you kind of gain with experience...consenting folk and gaining consent from people before you do anything...you learn quickly about confidentiality ...it's more kind of experience, more you are exposed to people"* (GPS2, follow-up, quartile 4)

Knowledge of the NHS

Respondents reported that they found the NHS difficult to understand both at a local and national level.

> *"Difficult...it didn't seem to make a lot of sense..."* (GPS1, follow-up, quartile 2)

> *"Oh I have not got my head around it yet...as time goes on there's a fuzzy picture that's becoming more into focus about what the NHS is and I just think it has so many flaws...I just think the principle of healthcare, free at the point of access is just one of the best things that we have ever done as a society, and I think it would be a tragedy if anything ever happened to that"* (GPS19, follow-up, quartile 1)

> *"I don't really have that much of an understanding to be honest. I think everywhere is just completely different and I think I just kind of got used to the way this hospital works and now I'm at a different one and everything is completely different so I would say I don't have a clue how it works"* (GPS2, follow-up, quartile 4)

However respondents commented that they did not feel that the medical school could have prepared them better for working in the NHS.

> *"...the politics in the NHS I think that's something that no undergraduate course could prepare you for"* (GPS19, follow-up, quartile 1)

> *"It [how NHS works] can be difficult sometimes...But I understand there's no way it's feasible to teach this at medical school"* (GPS5, follow-up, quartile 4)

11.3.3 Glasgow Triangulation

There was an impression among some respondents that the knowledge base of some new graduates was poor:

> *"The areas they're less prepared in is that they need to… their core knowledge is… I'm not going to just give you an endless list of things but their knowledge of anatomy, physiology, pharmacology, pathology, bacteriology is poor and there are major gaps in their clinical medicine, which they can't actually fill because they don't have the background and the basics. Not for everyone, as I said, for some of them they're outstanding medical graduates"* (G Foundation Year Educational Supervisor 8)

It was questioned whether this lower knowledge base was a problem.

> *"I think their basic core knowledge is sometimes not as complete as it once was but I'm not so sure that that is so important at times as we would like to think. They certainly know less than the traditional student but I think they may be better at using the knowledge they have in terms of I think, they can apply their knowledge"* (G Undergraduate Tutor 9)

A majority who identified problems with knowledge confirmed that this finding was confined to some graduates and not all of them.

The perception of poor knowledge among graduates was not unanimous and some respondents felt that the knowledge base of trainees was good:

> *"I don't agree with the statement that they don't know anything. I think their educational attainment is still very high. Quite a high level of what we learned we probably didn't need to know. We have a lot of very good trainees. I don't think it has changed that much"* (G Portfolio Assessor 3)

Other respondents described a good knowledge base in specific areas such as long-term management:

> *"Other aspects I think, their basic core medical knowledge generally in terms of long-term management of the sorts of conditions that one sees regularly on a general medical ward is also very good and I've been impressed by the core knowledge in that regard"* (G Key Manager 2)

And there was a feeling among some that perhaps there had always been students who had gaps in their knowledge.

> *"That some of the gaps in knowledge are slightly concerning but again, maybe we are looking at it through rose tinted spectacles to a certain extent, you know perhaps we are thinking back when we did it you know it was great, you know that wasn't the case. You know there were people who didn't know a lot back in those days too but I think as I say maybe there is just a grain, more than a grain of truth to that that maybe there are gaps in knowledge"* (G Undergraduate Tutor 10)

Anatomy

Some respondents agreed that anatomy was an area of poor knowledge among graduates and thought that changes in undergraduate curricula were responsible for this:

> *"Well they don't know any anatomy…the pendulum has spun away from didactic teaching of the basic sciences and it's swung much too far. You could argue that in the past there was too much time spent on details of embryology and this kind of stuff which is borderline benefits later on but we've gone much too far the other way such that they don't know the names of the bones in the leg. I've come across that. They don't know the names of any arteries in the leg, any of them"* (G Undergraduate Tutor 4).

However, by contrast some respondents thought that current trainees were better equipped for finding out what they needed to know rather than relying on didactic learning of anatomy as a student:

> *"we learned a lot of anatomy and stuff that we are never going to use, it's just a whole lot of nonsense and because of we had this big thick book that we studied we thought we were secure and we thought we were good but if you look back at it, how much have you learned since the internet has come along and you know you have moved into an emancipated world with medicine and they have grown up with it and they are better doctors than what we were, we just have to get used to it"* (G Portfolio Assessor 4).

Other respondents felt that the relevance of anatomy may be more related to the long-term plans of the trainee rather than their F1 post, and that undergraduate training may not directly relate to this

> *"If you're going to be an orthopaedic surgeon in five years' time, then it's necessary to know the details of the anatomy of the shoulder. But whether in the long run, whether in ten, fifteen years time there's any difference between the way people were trained and the end outcome, I don't know. But I think there needs to be more of a mix between core basic science training, core clinical science training, in the form of lectures and the PBL"* (G Foundation Year Educational Supervisor 8)

Knowledge of the NHS

Several respondents emphasized the rapid rate of change occurring in the NHS but only one respondent, who was a GP, spontaneously mentioned lack of knowledge of how the NHS worked as a problem for new doctors.

> *"I think they obviously need to be updated because certainly general practice changes quite rapidly and I think that probably an in-depth, introduction to you know the structure of primary care is quite important...Because I think some of them have difficulty recalling…"* (G Undergraduate Tutor 1)

11.3.4 Summary of 'Knowledge' for Glasgow graduates

Anatomy

Some medical students reported that they felt their knowledge of anatomy was a weakness, yet others felt it was sufficient and it was surgeons who emphasised their lack of knowledge. At follow-up half of the F1s reported that their knowledge of anatomy was sufficient for their needs, whilst a smaller group expressed concerns that it had not been sufficient.

The perspective from the clinicians highlighted a divided view. Some clinicians took the view that knowledge of anatomy was well below satisfactory. Others felt that much of what had been learned as undergraduates had been unnecessary.

Legal and ethical

Most F1s reported no specific problems related to legal and ethical issues. Some F1s reported a need for further training with regard to consent. Some F1s lacked clarity on whether they could take consent or not.

NHS

F1s reported that they found the NHS difficult to understand at both national and local level. They also added that this was a difficult area for the medical school to prepare them for.

11.4 'Knowledge': common themes and differences between sites

Knowledge of anatomy was perceived as a potential weakness by some new graduates at all sites, but this was not borne out in their initial experience of F1, nor seen as a weakness by the triangulating sample. While there are acknowledged gaps, these do not generally present problems in F1, although assisting in theatre would require more.

A need for a more advanced level of legal and ethical issues was identified. The NHS was identified as complex but understanding of the local context was improved through working in it. No clear differences in preparedness between medical schools emerged for this theme.

11.5 Commentary on theme from the research team Professors from each medical school

Anatomy teaching is a contentious issue, and criticisms about its demise in terms of time devoted to it, along with criticisms of new approaches to teaching and learning and the effect on practice are often emotive and based on opinion rather than evidence. Ethical and legal aspects of medicine are addressed in some depth at all three schools, with an emphasis on nurturing the skills of ethical reasoning. An important element of this is to get across to the learners that there is often no 'right' answer to ethical problems encountered in practice, indeed there are often a range of perspectives each with its own merits and weaknesses.

Chapter 12. Clinical and practical skills

This chapter describes the responses of the new graduates and triangulating samples around areas of clinical practice, and the large range of skills new doctors have to practise and develop – the core business of being a doctor and practising medicine. The analysis is grouped under four main headings:

- History taking and examination
- Practical skills (including taking blood, cannulation)
- Acute management and decision making (including diagnosis)
- Mistakes

12.1 Newcastle Graduates

12.1.1 Expectations of Newcastle Primary Sample

Practical skills

Respondents reported that they felt well prepared for some of the more common procedures they had more experience of.

> *"I think sort of the basic procedures and things that we've done a lot, you know, things like taking bloods, catheterisation, all that sort of stuff should be absolutely fine"* (NPS224, first interview, quartile 1)

> *"It's the clinical examinations and ...a lot of practical skills that we've [done] again and again like cannulation, arterial gases 'cos there's been lots of opportunities where I've been to do them and see them, examining patients with common conditions because we've spent so long working at District General Hospitals. You don't see the rare things so much but you see lots of the common things"* (NPS209, first interview, quartile 1)

However this feeling was not universal. Some respondents felt that sometimes it was difficult to get access to patients as a student, and several had carried out only one procedure on a real patient. Graduates also reported prioritising their efforts to focus on their forthcoming written examinations, recognising that they could be signed off as able to perform a procedure equally well on a mannequin.

> *[On NG tube insertion] "… we've done it on the model but not necessarily done it on a patient, just because it's quite hard as a student to keep turning up on wards and be like; 'can I do this?' and because everyone needed to do them as well …you're just like 'ah, I can do it on the dummy and get it signed off'"* (NPS93, first interview, quartile 3)

There is also the point that having experience of carrying out a procedure does not necessarily prepare the trainee for all instances of that procedure – more complex cases may provide a challenge even if the trainee feels generally prepared. They may also have to take on the responsibility for such cases even if they do not feel they have sufficient experience.

> *"Catheterisation – I'm avoiding it as much as I could… I think I've done four male catheterisations, and um, they've all gone fine, but I know that one day there's going to be a nurse, and she's going to come to me and say, this man has an enlarged prostate and I can't catheterise him and she'll have done hundreds, and I'll have done four"* (NPS209, first interview, quartile 1)

Acute management and decision making

Respondents expressed concerns that they may not have sufficient clinical experience dealing with the 'sharp end' of care - managing acutely ill patients, and dealing with emergencies.

> *"Managing ill patients you've got an awful lot more acutely because obviously you can get senior help but you've still got to do something on your own before you can call for them and I think that's something [I will] be a bit more worried about than any other things".* (NPS181, first interview, quartile 2)

> *"Emergencies is easy but a patient who is just maybe – we're not sure if he's responding to the treatment we're doing, giving or something like that – when to call for help but I'm sure they'll tell – that's something that they're going to tell"* (NPS209, first interview, quartile 1)

The responsibility for quick decision making in acute management was seen as potentially more intense during on-call periods, and was also an areas about which some of the sample also felt they had insufficient awareness. A related anticipated pressure is that of making a mistake and the support available in that event:

> *"….how do you deal with errors? Because at some point maybe I will make a mistake or someone else will make a mistake, what happens, what to do if that happens"* (NPS190, first interview, quartile 1)

12.1.2 Experience of Newcastle Primary Sample

History taking

Overall the new F1s felt they had been prepared for history taking and the initial examination in clerking patients.

> *"Oh I would say that like seeing patients, like clerking patients, I was, I think I was prepared for that. I didn't find it very difficult"* (NPS182, follow-up, quartile 2)

> *"I think things round taking histories and examining patients, I feel quite well prepared for that"* (NPS18, follow-up, quartile 4)

> *"I think taking histories, clerking a patient ...although it was a bit scary actually doing and assessing patients who were ill...looking back I probably was well prepared..."* (NPS8, follow-up, quartile 4)

> *"History taking doesn't tend to be too much of a problem; it's something you tend to pick up quite quickly"* (NPS9, follow-up, quartile 4)

Practical skills

Generally the F1s reported that they had been well prepared for the practical skills they had needed. Some acknowledged that this had been an area they had previously been concerned about as they had not done many procedures as a medical student. Having to use practical skills on a daily basis provided the opportunity to gain more experience in a relatively short period which increased both their ability to do these tasks and increased confidence.

> *"I think again with practical skills you know I'm doing sort of at least on average sort of maybe three or four cannulas a day and a couple of bloods thrown in there and ABGs and things like that on a variety of patients so I think that's definitely got a lot better. My confidence with doing that is improved a huge amount"* (NPS224, follow-up, quartile 1)

> *"I wasn't particularly good at the practical skills when I started off but I think that you just do so much of it that you get better quite quickly and like catheterisation I mean I had to do one you know whilst I was on call and it, it wasn't really a problem... I*

> *knew how to do it and I just, just did it … I wouldn't say those areas were a particular problem actually."* (NPS9, follow-up, quartile 4)

One respondent identified the practice they had sought out as an undergraduate as having benefited them as they started work.

> *"I made a point of doing lots of … venepuncture and cannulations to death in terms of the final year. I thought it could help me out which I think it has been, has put me in good stead and I have not had to learn on the job … people seem to rock up on their first day having only done 3 or 4 in final year and they are having to get good at cannulas, so I think I was quite well prepared for that".* (NPS65, follow-up, quartile 3)

Acute management and decision making

Managing patients who were acutely ill and having to make quick decisions was an area that some F1s reported feeling nervous about, although several mentioned various courses they had done which helped them prepare for this. Others commented on the distance between theory and practice and that only experience would be able to fully prepare them for the demands of such situations.

> *"I've had difficulty with being in the acute situation, being the first person that's called to an acute situation and… being the first person to initiate the basic management for that patient and recognising what's wrong and... What I've done has been sort of the right thing to do, but I've just had difficulty with the environment and I just find it quite a frightening environment really"* (NPS26, follow-up, quartile 4)

> *"I think it's one thing knowing how to do it in theory and it's another thing kind of recognising something in quite complex situations where things aren't always that clear."* (NPS9, follow–up, quartile 4)

> *"I was actually quite fortunate in that I had two courses quite early on. I had the ALERT course and the ALS course….they really helped …so to some degree I think in theory part, yes –prepared, practical part – I think experience is the only way really."* (NPS143, follow-up, quartile 2)

Most F1s reported that they were able to recognise the acutely ill patient but felt developing a management plan requires more experience.

> *"I don't think recognising [illness has been a problem], maybe managing it"* (NPS93, follow-up, quartile 3)

> *"I can recognise that someone's not well, it's management [that's a problem]"* (NPS146, follow-up, quartile 2)

> *"I think most of us leaving medical school are quite comfortable with gathering the evidence, you know from history to examining the patients and then the results, but it is – need experience of the other side of what the appropriate next step is and that comes really quickly"* (NPS22, follow-up, quartile 4)

> *"I don't think I missed anything... I would be about to assess them and try to do management acutely and then I would be out of my league and I would have to call for a senior doctor to take further action."* (NPS182, follow up, quartile 2)

However help might not always be to hand:

> *"I found on the wards that help can take a lot longer to arrive than you expect, and so you're trying to manage patients that you think are sick on your own a lot more, which isn't something I was really prepared for…"* (NPS18, follow-up, quartile 4)

The responsibility of making clinical decisions was mentioned by some respondents as a challenge, in terms of applying knowledge in a real environment.

> *"I think clinical decision making is always difficult. It doesn't quite fit the theory or remembering things when you're doing it in practice"* (NPS106, follow-up, quartile 3)

> *"The only thing out of that is, sort of what you mentioned about making decisions based on clinical evidence actually we don't get a lot of exposure to that and …as an F1 you are more responsible and you're expected to see things and make decisions based on that"* (NPS24, follow-up, quartile 4)

> *"Clinical decision making has been a lot more of a kind of difficulty. Just in terms of knowing what you are expected to be able to do without senior advice or senior support"* (NPS18, follow-up, quartile 4)

Taking autonomous responsibility without always referring to a senior before making a decision was also a change to become used to, that they had authority to make some decisions, although such decisions should still be confirmed with a senior.

> *"I think it's taking me a little while to overcome the fact that I'm not a med student I can't just gather the information ... and make some tentative decisions … and ask my senior. Whereas now I just think there's no point in asking my senior, just get on and do it and then tell them what I've done and make sure that it's all right"* (NPS8, follow-up, quartile 4)

> *"It's mostly been clinical decisions and once you've started the initial management for a patient making sure that what you're doing for them is the correct thing. And a lot of the time it's just having someone come in and say, 'Yeah, what you've done is fine, just keep going with that'."* (NPS18, follow-up, quartile 4)

Some F1s compared learning in the classroom to being on the ward. In particular they commented that often real patients had more complicated health problems compared to the simulated patients and scenarios they were used to at medical school.

> *"You learn about certain things when you're studying the core clinical topics, but…a lot of the patients on the ward are very complicated and don't necessarily present with something that's that straightforward and they've got quite a number of…acute medical problems. So I had…a brief kind of understanding of it, but…not to the detail that I've experienced since I've been working."* (NPS26, follow-up, quartile 4)

Mistakes

Some F1s did report that they made a few clinical and practical errors. Some were to do with mixing up patients and involved taking blood from the wrong patient, writing up notes in the wrong notes and seeking consent from the wrong patient. Other errors were to do with patient management.

> *"I have, there have been quite a few silly mistakes like giving a patient fluids and IV and giving them a water tablet as well kind of thing erm that you get pulled up on but I don't think there's been anything like really serious"* (NPS181, follow-up, quartile 2)

> *"I got a phone call later saying 'you didn't put one [cannula] in the right woman, you've put it in a ' different woman'. And I think that's my fault for not checking the wristband and taking the patient as kind of a 'yes I'm her' when she was old and she was probably quite confused but I didn't know it because I didn't know her"* (NPS139, follow-up, quartile 2)

Some F1s reported that they had made errors in their clinical decision making.

> *"One gentleman came in with abdominal perforation very signs that you would expect with bowel perforation. And I was falsely reassured by his examination and because of that I didn't have the urgency for his x-ray and therefore he was delayed to go to x-ray and then delayed to go to theatre and thankfully he was OK."* (NPS209, follow-up, quartile 1)

> *"The lady turned out to have pneumonia and I'd done a brief, brief sort of looking for symptoms of anaemia, and, and then she'd had pneumonia but then you know it was, she was sitting in a seat postoperatively. She was doing fine and no-one spotted it until, until eight o'clock and she deteriorated very, very quickly from sort of*

> *four o'clock until eight o'clock and died at twelve or something like that."* (NPS224, follow-up, quartile 1)

12.1.3 Newcastle Triangulation

In the triangulating interviews, key managers in particular commented favourably on graduates' history taking skills.

> *"Some of them have got quite good practically at taking history of patients, listing concerns and things like that"* (N Key Manager 6)

> *"I think they are pretty well prepared at interviewing and examining; I think they are reasonably prepared for writing it all down and summarising"* (N Key Manager 8)

Comments from the supervisors, managers and tutors suggest that new F1s are able to do basic procedures but not complex ones.

> *"More so [prepared], yes, and they very quickly get onto that, I think they often get quite good at it"* (N Educational Supervisor 19)

> *"I think the vast majority will be quite comfortable at doing basic procedures, so taking bloods, putting in lines, doing a variety of little procedures around the ward; most of them are ok with that. They are able to do the business"* (N Key Manager 1)

> *"I think they are mostly fine at phlebotomy and cannula insertion and catheterisation. I don't think they get very much practice at other things like naso-gastric tubes."* (N Key Manager 8)

However one respondent indicated that even basic skills may be lacking:

> *"I can't speak for other practical skills but the basic skills of basic airway maintenance and intravascular access, they're not prepared for it at all."* (N Educational Supervisor 7)

As well as practical skills basic requirements were seen to include being able to deal with basic mental health issues in an emergency care context:

> *"They should be able to handle...the patient with delirium and they should be able to attend to the psycho-social aspects of a patient who is presented with self poisoning… assess somebody for depression … also substance misuse problems, again that is very much a problem that they are going to encounter in any area of practice"* (N Undergraduate Tutor 1)

Acute and emergency care also present different practical and professional requirements, with front-line diagnostic and management skills which F1s may not be equipped with:

> *"I think they are less prepared in really coming up with and writing down a definitive list of differential diagnosis which is robust."* (N Key Manager 1)

> *"As far as clinical skills go, in my own field [dealing with seriously ill patients] they're not prepared at all"* (N Educational Supervisor 7)

There were several unfavourable comparisons of current F1s to their predecessors, with supervisors and managers seeing a lack of preparedness stemming from a reduction in the exposure to clinical procedures during the final undergraduate year, both through the protection for patients provided by clinical governance and the associated increase in the use of simulators, and possible over-protection of trainees by supervisors.

> *"The cohorts up until about ten years ago had a lot more exposure to those types of skills as final year students on the wards, and I don't think that happens now and there is a variety of reasons for that I mean there's issues of patient autonomy, consent, but I also think there's issues of other people doing the jobs on the wards like phlebotomists and what have you in the first instance."* (N Educational Supervisor 7)

> *"… you can become competent at sticking a cannula into a plastic arm, I think the transition is into the real life model where things tend to become a bit unstuck"* (N Undergraduate Tutor 6, also an educational supervisor)

> *"We haven't actually managed to find that fine balance between supervision and training, we often regard supervision as being training and not allowing anybody to do anything else ... I don't think they've got the level of autonomous practice that some of their equivalents had"* (N Educational Supervisor 7)

Acute Management

The triangulating sample recognised that there may be some difficulty in being fully prepared for acute management due to constraints on the practical experience medical students can gain, imposed for the safety of both trainees and patients.

> *"This is one of the areas that is most difficult in terms of preparing the students to dealing with critically ill patients because you can't easily let them do it in an experiential way."* (N Undergraduate Tutor 2)

> *"They seem less prepared for the just to tackle the clinical situations that they're faced with day in day out…there's an issue with sort of patient consent and letting medical students do practical procedures which you know wasn't necessarily the case 15, 20 years ago"* (N Educational Supervisor 7)

12.1.4 Summary of 'Clinical and practical skills' for Newcastle graduates

The majority of new graduates reported that they felt prepared to carry out the clinical and practical tasks they expected to be frequent in their F1 job, such as history taking and examination, taking blood and cannulation. However, over a third reported they needed further practice to be competent. Students also reported prioritising their efforts on forthcoming examinations rather than gaining experience. Gaining access to patients was not always easy and since they could be signed off as competent performing certain procedures on mannequins or simulators, this reduced the necessity to perform procedures on real patients.

At follow-up the new F1s reported they felt they had been prepared for clinical and practical skills, but that making clinical decisions and developing management plans once an acutely ill patient was identified were areas that were more challenging. The challenge here was applying knowledge to a real clinical situation, and also knowing the boundary of decisions they should be able to make and those that needed senior input. A few F1s also reported that this is an area in which they had made mistakes. Some F1s reported being in situations where they were the only doctor and had to make decisions when help was slow in arriving.

There were concerns about having had a lack of clinical experience at the 'sharp end' of care, dealing with acutely ill patients and with emergencies. Some respondents had been on relevant courses to help prepare them for emergency situations, while some took the view that this is an area that needs to be learned in practice rather than in theory. Some F1s identified a qualitative difference between working with one patient in a classroom situation and working with many patients, several of whom may have complex medical histories.

Perceptions from the triangulation data were that new F1s are able to perform basic practical procedures but not complex ones. Some clinicians expressed concern that F1s are not as equipped as they should be to deal with front-line diagnostic and management skills, including dealing with patients who were seriously ill. Dealing with acute management was identified as a large step up in practice. There was a general feeling that new F1s start work with less work experience than they had in the past and this was not ideal.

12.2 Warwick Graduates

12.2.1 Expectations of Warwick primary sample

History taking

Most of the final year students felt prepared to carry out history taking and make a judgement about initial diagnosis.

> *"I think I'm confident to do an examination and to report the most important findings and to list the signs, or to know what those signs mean and indicate, so in terms of clinical diagnosis."* (WPS12, first interview, quartile 2)

> *"The medical school was really quite good about making us learn the best history taking techniques and clinical examination skills. We do them over and over again and we are tested on them quite often."* (WPS24, first interview, quartile 4)

> *"Well I think that for undergraduate training you get taught very well how to take an excellent history and how to do immediate managing."* (WPS3, first interview, quartile 1)

The complexity of clinical practice, and integrating all the facets of undergraduate training was identified by one respondent.

> *"It's about integrating hard, clinical and scientific knowledge into being a practically functioning doctor. That is the real challenge for me, being able to have differential diagnoses at your fingertips, being able to pull on basic science and pull on clinical knowledge to be effective and academic on your feet. There is going to be a massive amount of integration that's going to happen over the first month."* (WPS16, first interview, quartile 3)

Practical skills

Some respondents felt less prepared for the clinical skills that they would be expected to have. Views were mixed on the amount of exposure they had received as undergraduates.

> *"The practical side of things again we've had enough exposure and enough opportunity to do numerous practical procedures such as taking bloods, taking arterial blood gases, and doing some suturing, writing reports, prescribing certain drugs and giving fluids the such like."* (WPS11, first interview, quartile 2)

> *"Although you do get a lot of exposure to patients, I don't think you don't get as much exposure as I would have hoped in doing the practical side of things."* (WPS23, first interview, quartile 4)

> *"I don't think, personally we are given enough exposure of doing practical procedures. I guess with people being quite busy it's hard for them to offload things if they are going to have to go and check and re-do them in certain cases. My experience was that I didn't get many opportunities to actually do many of the practicals myself. I've seen a lot of them but haven't actually done them hands-on"* (WPS14, first interview, quartile 1)

Some recognised their own responsibility to gain experience:

> *"So I wonder whether I will be brave enough to say 'ok let me finish it off and do it' without saying to the doctor I am shadowing, 'Oh no, no, you take over'. It's just getting that first one done and then this fills you with confidence."* (WPS21, first interview, quartile 4)

> *"Cannulas I had to learn to do, but I'm quite confident with that and mainly because I've made myself pester people to let me put cannulas in. I don't think we were ever really taught how to put a cannula in at all."* (WPS16, first interview, quartile 3)

Some specific skills were of concern, usually as there had not been the opportunity to practise them on real patients, although they may have been practised on simulators.

> *"There is catheterisation for instance. I think I have only done three, which although there were no problems when I did them the first time, just the practicalities of doing it. Again on my own without anyone there to assist is a slightly daunting task"* (WPS20, first interview, quartile 4)

> *"We do this [catheterisation] on mannequins, so just the thought of doing it on a real person is a bit – ooh. I have put in a few cannulas and I have taken some bloods but the thing I am worried about is catheterisations and blood patches and brain screens."* (WPS21, first interview, quartile 4)

> *"We've obviously practised other things like bladder catheterisation and naso-gastric tubes on models in the past, but it will be different doing it on patients. So I'm not overly confident on those things, although I've been through how it should be done."* (WPS24, first interview, quartile 4)

Acute management and decision making

Some respondents felt less prepared to manage acutely ill patients or emergencies, but made the point that they had not seen these very often as undergraduates.

> *"One of the things that is quite scary is that people get very sick very quickly and when they can't breathe, it's worrying."* (WPS13, first interview, quartile 3)

> *"We've done certain things like heart attacks and cardiac arrests and those sort of big emergencies, but somebody that was on the ward that became quite ill quite quickly, something like that you might be more concerned about. Not because you haven't necessarily ... learnt about it but because it's something that you haven't seen before ... medicine is such an enormous topic you can't expect to have gone through and seen everything there is to see"* (WPS11, first interview, quartile 2)

Some respondents made reference to not feeling prepared for the responsibility of having to assess and make decisions about patient management.

> *"An area that makes me a little bit nervous is that at the start of June I'm going to gain a huge amount of responsibility. When it comes to the ability to assess and the ability to actually play an active role in the patient's management, which is something that up until this point has only ever been hypothetical."* (WPS18, first interview, quartile 1)

> *"When it comes to a bit more in depth management, as in how long can they stay in for, what is the definitive treatment, do they need surgery or not, those kinds of things I'm not well prepared for just yet."* (WPS17, first interview, quartile 3)

Making mistakes

Final year medical students did not feel fully prepared to deal with making mistakes but recognised that help would be available and that they had been taught how to document what they do.

> *"I'm a bit scared if I make a mistake as an F1 doctor, that it could be a serious mistake. Then what do I do?"* (WPS23, first interview, quartile 4)

> *"It is a big step and you don't want to make a mistake and I know the pharmacists are there with their green pen and they'll correct you and the nurses will double check it and if there's anything they'll always do it, but it's still that having to write it and it's your name and if you sign it and the first time I do it my heart's going to skip a beat I think."* (WPS12, first interview, quartile 2)

> *"I suppose I'm dreading getting something horribly wrong and killing someone, but I'd like to think that I would always do my best and that I won't do anything utterly stupid. At the end of the day, I am just human so I suppose at some point I will mess*

up which worries me a bit. But we've been taught basically that whatever you do, document it." (WPS16, first interview, quartile 3)

12.2.2 Experience of Warwick primary sample

History taking

Most F1s reported feeling prepared for history taking when they started work, although maybe they had not had enough exposure to real clinical situations as undergraduates. The difference in context and role that comes with being a doctor rather than a student is recognised though.

> *"I would say history taking and examination I was prepared for."* (WPS7, follow-up, quartile 2)

> *"I suppose things like history taking, examinations, yes, we were prepared in that we knew how to do these things, but I wouldn't say we'd had enough exposure. Not because we weren't given the opportunities, but simply because when you're doing it as a doctor, you suddenly have the responsibility ... it's a different approach, and it's not that you maybe aren't well equipped, it's just that the approach you've used, the way of thinking that you had used previously, has now changed. You have to adapt in that sense."* (WPS15, follow-up, quartile 3)

> *"And again history taking and examination I found at the start it was very different having learnt how to do it to pass an exam, and then to do it in an A&E setting. I have learnt and I have improved greatly over my time. At the start I found it quite strange and difficult. Yeah I think I have managed to improve a lot."* (WPS9, follow-up, quartile 2)

Practical skills

Generally F1s had felt prepared and had not experienced anticipated difficulties with clinical and practical skills, although some reported that occasionally nothing seemed to go right on some days. They reported that if they did experience difficulties there were always other people to assist.

> *"But the practical side of things, everything else, apart from catheterisation, which I've picked up, I felt quite happy with, because I had managed to get quite a lot of practice while I was a student, which definitely helped ... But at the end of the day, if you had a patient whom you couldn't get a cannula in, then you can always call the back up, so you are quite well supported, which is good"* (WPS6, follow-up, quartile 3)

> *"if you need help then there's always someone to ask* - a *more senior doctor or a more senior nurse practitioner or someone. There always seems to be someone available to get help from, and it's quite easy to access that. I wouldn't say I've had any real issues regarding that."* (WPS4, follow-up, quartile 1)

Acute management and decision making

Several respondents felt the management of an acute illness was an area of weakness, although experience had improved them.

> *"I think I'm probably not as confident in acute case areas. Recognising them is becoming easier I think. I've done advanced life support now as well, so that's helped. ... I haven't had that much exposure*." (WPS4, follow-up, quartile1)

> *"I think I am quite good at finding out when someone is unwell but the initial management I found quite difficult and still that is a big area of improvement for me. I find acute medicine almost a bit scary really because if someone is suddenly unwell and you have got to do something straight away ...I panic a little bit but at least my saving grace is if I panic and realise I can't do something myself then I go*

> *straight for senior help, I always make sure that I ask a senior"* (WPS9, follow-up, quartile 2)

There were suggestions that the problems in recognising acute illness were as a result of lack of exposure to the situation but F1s quickly learnt on the job with the help of others, particularly nurses, and additional training.

> *"I don't think I got enough exposure to it because I don't think we do enough on-calls"* (WPS18, follow-up, quartile 1)

> *"I think an acutely ill patient, the word experience comes in again and again, but there is no substitute for experience. And I think that if you see a patient for the first time you do not know how ill they are. Sometimes you can see ill patients...you know they're ill because of your experience or because you've seen them deteriorate on the ward. And other times you just have to take the word of a nurse, or someone who looks after them. They will tell you that they're ill."* (WPS17, follow-up, quartile 3)

> *"I think it's something that you still have to be very aware of what the nursing staff say. I've started to pick up a lot better myself when somebody needs urgent attention, but I think it's when you first start, you very much base your assumptions on what the nursing staff say. If they say that someone's not looking well, it's generally a good idea to take it quite seriously. "*(WPS20, follow-up, quartile 4)

While support is available, there were also comments referring to the autonomy and responsibility of having to make decisions, especially when on call.

> *"…you can find that you have to make a lot of decisions on your own, and maybe I wasn't quite prepared for that. I maybe sort of expected someone might be there to hold my hand. But practically, I think we were given everything we needed. It was just learning to use it in a way that was appropriate, and being able to apply it in that sense."* (WPS15, first interview, quartile 3)

> *"You get calls to see an acutely ill patient who [is] basically needing [a] quick decision making on the spot. They are probably in a hypo or have some kind of life threatening conditions. I found those situations difficult you know, especially if I am on call ... and there is no other support around me. I have to bleep the SpR and he may be busy wherever he is and cannot come at the time. So I found that difficult, quite hard for me as an F1 with little experience."* (WPS21, follow-up, quartile 4)

Making mistakes

The only areas where a few F1s felt unprepared for making mistakes, apart from prescribing (addressed in a later chapter), were knowing about and following protocols as well as discharge procedures, which they thought were not emphasised enough in training.

> *"I think to a certain degree there's not enough emphasis placed on things like writing your notes, and things that we do every day. Making notes on ward rounds, and filling in discharge letters and things like that, what the implications [are] of what you write on those I don't think are particularly well put across at all, until you make a mistake, and then someone brings you up."* (WPS4, follow-up, quartile 1)

12.2.3 Warwick Triangulation

History taking

Respondents in the triangulating sample felt that undergraduate teaching had adequately prepared the new graduates for history taking.

> *"I think they are reasonably well prepared in terms of writing histories or making investigations. I think they are prepared, there's not too much of a problem."* (W Educational Supervisor 1)

> *"I think [in] the initial primary survey of patients, they take a good history and they are skilled with dealing with patients."* (W Undergraduate Tutor 2)

> *"I think they know where to look in terms of medical history in terms of patient notes and they are good at finding facts out of the notes."* (W Undergraduate Tutor 1)

> *"I think they are reasonably well prepared in terms of writing histories or making investigations I think they are prepared, there's not too much of a problem."* (W Key Manager 4)

Practical skills

Overall, respondents thought that F1s were prepared in general clinical and practical skills. A few respondents thought that there may be too few procedures carried out but that it may be a reflection of the changes in the training system.

> *"Overall they are good and I don't want to be negative. Some feedback from our SpR who had worked at other hospitals in the Midlands said that all of the doctors in training here are really good."* (W Undergraduate Tutor 5)

> *"They have the basics of management, the basics of ordering tests, the basics of how to conduct a ward round."* (W Educational Supervisor 5)

> *"I think that the ones we have on our ward are pretty clued up really. They seem to know what it's all about… In general their attitude is good and the areas where they are weak are practical and probably prescribing where they don't know … I think they've learnt the basics pretty well and I don't think there's anything really to pull them up on. I get the feeling that they've done their grounding pretty thoroughly."* (W Undergraduate Tutor 3)

> *"They clearly get less....clinical skills. I think they are more competent at history taking and examination but they perhaps lack the experience that used to be part of the medical school experience. What I mean by that is that in the past it wasn't so much learning or teaching, you were virtually doing the job in some way ...You can no longer leave a pre-registration houseman, expecting them to run the firm in terms of practical procedures or whatever."* (W Undergraduate Tutor 4)

> *"Practically speaking I wonder whether they've got enough experience in practical procedures for instance.... [in my day] it was a matter of getting on with what you were expected to do and I'm not sure whether that quite exists now."* (W Undergraduate Tutor 8)

However, there was concern that F1s were not prepared to make decisions or to draw conclusions and make a diagnosis.

> *"….but what they tend not to do is commit themselves to making a diagnosis and establishing a formal management plan. They will say, yeah this is the problem but they don't really come to any conclusion on what they are going to do about it. They tend to devolve responsibility. So they are bad at that."* (W Educational Supervisor 5)

> *"I think it is a very steep learning curve. They are suddenly having to confront patients and relatives and staff in a professional way which they have not had to do as students. They will feel anxious about dealing with unhappy patients, or very sick patients or anxious relatives or over-stressed staff and all of these interactions they have never really been exposed to before. Actually I think it is very difficult to simulate them really as medical students. That is why I think the shadowing period is so important. That is the only time when you are going to see what interaction an F1 has."* (W Key Manager 5)

Acute management

This group of respondents identified that F1s were not prepared for acute management. It was also suggested that the short blocks for F1s were not allowing enough time to learn about managing acute cases.

> *"They are not so good at emergency stuff. I was with an F1 at the weekend and we had a patient with an anaphylactic shock and they just stood there, not knowing what to do. I was probably the same, but that's not what you are looking for here. So I don't think they are very well prepared for emergency things."* (W Undergraduate Tutor 7)

> *"I mean it is not a major problem and they are not dangerous in anyway, but you sometimes feel that there are great gaps in their knowledge that shouldn't be there. But I think, having talked with them, they feel very nervous about dealing with emergencies. I also teach ALS and they are all terrified. That is my experience."* (W Undergraduate Tutor 1)

Some respondents thought that F1s were not prepared for the continuity of care needed in making decisions about management.

> *"One of the things we work at very much with the students, or try to, is to get them thinking along the lines of the portfolio cases in fact, you know, you are thinking ahead, what does it mean, what's the importance, and decision making……..I don't think I am romanticising that even a few years ago there was that greater understanding, greater continuity, the ability to see that little bit further ahead. Now, it may well be that that is what we have got to do at F1 level, whereas in the past that was being done as a final year student"* (W Undergraduate Tutor 4)

Making mistakes

No-one in this group of respondents explicitly mentioned making mistakes There were very mixed views of the level of clinical skills and implicitly of the risk of making mistakes, ranging from fully prepared to not so good at practical skills and very nervous of emergencies. Gaps in knowledge were identified but not seen as dangerous.

12.2.4 Summary of 'Clinical and practical skills' for Warwick graduates

Overall most medical graduates felt prepared for the clinical and practical skills they would need when they started work. Some graduates felt they would have preferred to have had more practice of these skills with real patients, and said they were less prepared for acute cases due to a lack of exposure. The majority reported being well prepared for history taking. At follow-up the F1s were quite happy, reporting they had not experienced any difficulties with clinical and practical procedures as they were always able to get help if they needed it. They also reported being prepared for history taking. However there were some concerns about patient management and decision making, and confidence with acute management was still relatively low.

Perceptions from the triangulation data were that generally the F1s were prepared for the clinical and practical skills they needed including history taking. However, there was an acknowledgement that F1s get less on the job experience than was the case in the past. Some clinicians had identified F1s who were very nervous about dealing with emergencies and suggested that a lack of exposure to acutely ill patients was due to the short blocks of time medical students spent on the wards.

12.3 Glasgow Graduates

12.3.1 Expectations of Glasgow primary sample

Practical skills

Respondents reported feeling well prepared in general for the clinical skills and procedures they would need, but did express concern about some particular practical procedures, such as inserting central lines or catheterisation that they had not had many opportunities to perform on real patients (only on simulators). The reality of having to perform procedures in a real clinical context was also daunting.

> *"But I don't know if it's expected of us but things like doing lumbar punctures and central lines and just being able to do them efficiently. You know when you do them just now we get a lot of time if you are just helping out as a student. Whereas if you've got ten to do and an hour to do them and you are running around..."* (GPS4, first interview, quartile 1)

Respondents did express concerns about how they would manage acutely unwell patients but didn't feel that the undergraduate course could fully prepare them for dealing with acute emergencies.

> *"With a patient who is acutely unwell I mean as a medical student you are never given the opportunity to say what you would do, its always left to other people when we just stand and watch, whereas when you start work you can't do that, you can't just stand and watch anymore so you've got to have a bit more, take a bit more responsibility than what you do as a medical student"* (GPS6, first interview, quartile 3)

Other respondents felt that they would be well supported when having to deal with acute emergencies.

> *"I mean just start off with the ABCs and that, but the one thing that all the FY1s have said is that you are never actually alone because there is always a nurse on the ward that will help you and they know you know how to manage an airway and things as well "* (GPS7, first interview, quartile 4)

Cardiac arrest was mentioned by several respondents when asked what they felt less prepared for but they felt that it wasn't really something that could be fully prepared for in the curriculum. They had had a lot of training in it but had never seen a real one.

> *"I don't think I am really prepared for cardiac arrest. I think I'm quite scared… But I don't think anyone can be prepared for that. We've done so many courses."* (GPS3, first interview, quartile 2)

12.3.2 Experience of Glasgow primary sample

History taking

This was an area where all bar one respondent felt prepared:

> *"History taking and things, I think no we were quite, I think we did a lot of that in medical school and I felt quite prepared for that."* (GPS4, follow-up, quartile 1)

> *"… taking history and things like that, I think that was fine, I think I was very well prepared to be able to go in and get information from patients that I needed."* (GPS18, follow-up, quartile 4)

The one respondent who did express concerns in this area felt that s/he had forgotten a lot over the summer and was out of practice (GPS7, follow-up, quartile 4). This respondent also mentioned the pressures of clerking quickly and having to adjust to history-taking at speed. Another respondent noted that opportunities for history taking vary and this particular

respondent reported gaining far more experience of clerking patients in surgery compared to medicine (GPS18, follow-up, quartile 4).

Practical skills

With regard to practical skills, feelings of preparedness did vary, but over half of the sample considered that this was an area where they had felt prepared:

> *"I think we were probably quite good at the practical procedures part, because we had done it in fourth year and fifth year."* (GPS3, follow-up, quartile 2)

> *"Those things weren't as bad as I expected. I wasn't great with them, again I didn't expect to be great, because of practice and that just came within the first three weeks relatively easy and the same with bloods. ECGs took a bit longer…"* (GPS16, follow-up, quartile 2)

> *"They seem to be fine. Obviously venflons and things like that, what is amazing is you very, very quickly become very good at doing it."* (GPS14, follow-up, quartile 1)

However, some respondents did report that they felt unprepared to carry out certain practical procedures:

> *"Just like some of the clinical skills, like bladder catheterisation and taking blood gases of people, I just didn't have that much experience at it but… and I was probably quite ill-prepared with that."* (GPS11, follow-up, quartile 1)

Of those who reported feeling unprepared initially in some practical aspects of the job, there was a recognition that, through practice, their skills were now much better:

> *"I think maybe in the first week or two, there was a bit of difficulty with some of the practical stuff. You know the easy stuff was easy but you get people that have very difficult veins or are very difficult to catheterise and I think it is just about confidence and practice. But to be honest that rectified within two weeks."* (GPS4, follow-up, quartile 1)

Two respondents reported encountering problems when nurses had tried and failed to undertake a procedure and had then called in the F1, who had struggled to perform a difficult instance of a procedure, for example a difficult catheterisation.

Responses demonstrate that the practical experience the new F1s had obtained at the time of interview was quite variable. One noted that s/he had only done one catheterisation because the nurses usually do it, and two noted that as F1s they are not asked to do many procedures anyway – one felt that s/he was becoming slightly 'deskilled'. Another expressed surprise at a colleague's lack of practice in cannulation:

> *"I did discover that actually one of my F1 colleagues had never cannulated anybody until he started work. This is another Glasgow graduate …* which *I think is pretty wrong to be honest. Even last week I had a page from one of the medical FY1s, because I've been working surgery for the last four months, saying, 'I've got to put a catheter in some one. Is there any chance you can come and help me with it because I've never done it before?'"* (GPS17, follow-up, quartile1)

This may be due to different hospitals or departments providing different levels of experience, or may be attributable to the individual doctor, with some individuals perhaps being more proactive in taking opportunities than others.

Two respondents mentioned that they sometimes feel under pressure to carry out procedures at speed and can feel rather stressed by the fact that they might be taking a long time to, for example, put in a venflon. There was also mention of the slight embarrassment involved in sometimes having to seek help to do something apparently straightforward such as taking blood. However, respondents seemed willing to ask for help in spite of this.

Acute management and decision making

Acute management and decision making were areas where respondents felt less prepared. This was in part attributed to confidence, and in part to experience. Several mentioned that it was at night or when on-call that worries about managing very sick patients were worst, when there would be fewer senior staff around to call for help and the responsibilities of the F1 were consequently higher. As with practical procedures, the extent to which F1s were required to make important clinical decisions varied.

> *"… making decisions I think are quite okay because you don't really have to do it that often as an FY1, you know, you're not really clerking patients in that much and if you are they're quite simple cases."* (GPS1, follow-up, quartile 2)

> *"The hospital that I am in just now, … even though we take history, we question patients, and things like that, most of the time we are not… we are not very involved in the clinical decision at all … we have to run it by our seniors … we still have a lot to learn there, a lot to be improved, definitely room for improvement, definitely"* (GPS3, follow-up, quartile 2)

> *"I find on night shifts managing acute illness to be quite hard actually, I think that's one of the areas I'm least good at and most frightened of. I think I can manage it but I maybe over diagnose it and worry about patients that the seniors don't worry about... I follow these definite protocols to manage it but then they're not always the most appropriate because the situation's more complex than I was able to deal with, so I definitely find that's the one area I'm really pretty short on."* (GPS10, follow-up, quartile 1)

Nights were mentioned as a particular stress by several respondents, some of whom had been on night duty very early in their placements. As well as being potentially daunting, nights can be where a lot of learning takes place because of the need to just 'get on with it' with less support than normal.

> *"By the end of a … 7 night stint your confidence really has grown because you've just had to be so autonomous and self sufficient....there's one SHO in the group they're actually in medical receiving doing a job over there. They are quite far away and they do come if needed but you really have you just kind of fend for yourself to a large extent."* (GPS19, follow-up, quartile 1)

A few respondents mentioned that they would always call on senior support to help with acutely ill patients, but it concerned them that they were maybe not taking decisions themselves – they were always reaching for senior help:

> *"We have always been told if you're not sure how to manage a patient, you get senior help and we… I think we tend to do that quite a lot these days. It's good for the patients' point of view. But … we don't really think about what to do now, all we do is just ask for senior help, so you don't actually start the thinking process at all*" (GPS3, follow-up, quartile 2)

Feelings of unpreparedness in managing the acutely unwell were not universal though, with one respondent expressing confidence in this area:

> *"I think one very important way in which I felt prepared and still do is in the assessment of a critically ill person. … I think I feel reasonably confident about initiating the first steps before calling for senior help."* (GPS19, follow-up, quartile 1)

There was a recognition that one's skills increase naturally over time through experience. By the end of their first placement, some F1s were reporting that they were able to make decisions and put in place a management plan and that their seniors were happy with them doing that:

> *"I think at the beginning [making decisions] was very scary. …Towards the end I was doing medical receiving and we were very much encouraged to see the patient and formulate a plan based on what we saw but obviously, again, it was getting*

> *checked by someone senior … most of the time they were happy that you'd made the clinical decision, which was good and it felt good as well that they did trust you to make some decisions."* (GPS18, follow-up, quartile 4)

> *"And I had a chat with the SHO and he was like 'no, you make very confident decisions, you know, you only phone me about sick people and people that need to be seen and, you know, most of the time when you phone… you already know the answers' … And I was quite pleased with that this morning. And I do feel much happier, much more confident in making clinical decisions."* (GPS14, follow-up, quartile 1)

> *"I think you go from being a medical student to a JHO and suddenly you've got responsibility. And I think that at the start you're not very good at realising who's ill and who's not ill. But that's something that comes with experience. So I don't think that's anything that really depends on what university you've been to. I think that's more how many months you've done since you've graduated".* (GPS17, follow-up, quartile 1)

Of those who felt they were prepared in this area, one made specific reference to ways in which the Glasgow course had helped:

> *"… in the fourth and fifth year you do case presentations once a week where you pick a patient you do with basically a class 10 and make it a management plan, I think it does really prepare you well for it."* (GPS2, follow-up, quartile 4)

Mistakes

Mistakes in the clinical skills were mostly made in relation to taking blood and the associated paperwork.

> *"I've taken blood off the wrong person"* (GPS2, follow-up, quartile 4)

> *"I took from this man and sent off all his blood with another persons sticker on it so potentially identifying the blood that I had taken from him as being the blood results of another person"* (GPS4, follow-up, quartile 1)

12.3.3 Glasgow Triangulation

The majority of respondents considered that the Glasgow students were well prepared in clinical skills.

> *"Well prepared. I think the main thing, I think they can nearly all examine somebody fairly accurately so I think to that extent that is okay. I think their examination techniques are sound"* (G Undergraduate Tutor 3).

They were also generally thought to be well prepared for basic practical skills.

> *"They have the clinical skills for specific tasks I would say they are quite well prepared so if you say take bloods, do blood gases, do an ECG"* (G Key Manager 4)

Some respondents felt that students could go through the motions of examining patients but felt that they didn't fully understand the importance of what they were doing because of how they had been taught, by non-clinicians.

> *"I think many of the clinical skills have been taught by non-clinicians with a video or something like that .... I found that many of them have read something and they were doing things in certain order and it was not bad but there was no idea of what they were doing so I had 70% of the students examining the patient from the wrong side of the bed. Which means they couldn't possibly feel the heart because they were all right handed and at the wrong side of the bed. They were all trying to put stethoscopes in the right place but not most of them they didn't try to listen because they spent less than one second in each place, you couldn't possibly have listened to anything, there was no time, so I'm just saying whoever was doing that was just*

> *teaching them to do something but not really the importance of that."* (G Undergraduate Tutor 1)

However it was acknowledged that doctors only become really adept at clinical and practical skills with practice.

> *"I think it depends on the individual. There are some doctors, again I don't watch people working on the first day, I'm not standing over them watching them, but some people obviously are going to be better at the basics like taking history putting a drip in, but everybody, you and I do things better as we do them more and everybody else does things better as they do them more"* (G Educational Supervisor 3)

Acute management

Acute management was identified as an area of weakness by some respondents, but not restricted to local graduates:

> *"The other area that I will mention in passing is the knowledge of acute medicine and how to deal with medical emergencies...my understanding of it, this is a fairly widespread problem, I think it's across the UK that if you ask medical students where they feel least comfortable it's ...acute situations. I think there is an unmet need there for teaching of our senior medical students in aspects of acute emergency medicine."* (G Key Manager 2)

It was, however, recognised that this was perhaps something that came with experience:

> *"They are not particularly able to cope with an ill patient, not even to cope with an ill patient, to recognise an ill patient, because coping comes with experience but the ability to recognise can be taught very early on and they are not in my experience able to recognise when somebody is really quite sick…Like I said the elective thing the cold stuff, they are very good at coping with, very good at dealing with but when things don't quite go according to plan, they don't always know what to do about that"* (G Foundation Year Educational Supervisor 6).

Others recognised that acute situations could be challenging for all doctors and that it was difficult to fully prepare for these challenges until faced with the situations in their working life:

> *"I think that they, they have most of the practical skills. They inevitably find as anyone does in this situation that when they are faced with acute on call type work in the evenings, on call receiving there is a challenge but I think, that they're adequately prepared for those acute things"* (G Foundation Year Educational Supervisor 5)

12.3.4 Summary of 'Clinical and practical skills' for Glasgow graduates

Generally the medical graduates felt well prepared for clinical and practical skills. There were some concerns over a lack of practice of some procedures and acute management with real patients.

At follow-up the majority of the new F1s reported being more prepared than they had expected for clinical and practical skills, although there were still a few who reported having had little practice. Some F1s reported concerns over clinical decision making recognising they had a lot to learn. The majority reported that they were well prepared for history taking.

Perceptions from the triangulation data were that the majority of new F1s were well prepared for clinical and practical skills and it was only through practise that these skills were acquired. There was concern that too much teaching went on in the classroom and not enough on the wards working and learning from other clinicians.

12.4 'Clinical and practical skills': common themes and differences between sites

Generally there was some concern about being able to perform clinical and practical procedures prior to starting work. At each medical school there were some students who finished medical school having performed very few clinical procedures on real patients.

At follow-up most F1s felt they had been better prepared than they had expected. Many referred to receiving help from other staff, but there were still some F1s for whom clinical and practical procedures were still a concern. There were concerns from some F1s at each medical school over clinical decisions and patient management. Management of acute cases was an area of particular uncertainty, directly related to a lack of earlier exposure, although tied to the inescapable change in responsibility which comes with being a doctor, and which cannot be directly prepared for. The data from all data sets from all medical schools indicates that new F1s are prepared for taking a medical history.

The triangulating sample's perspective was that generally new F1s are capable and if they were lacking they got 'up to speed' very quickly. However, there was a general view that they were not getting as much on-ward experience as was the case in the past and that more experience was helpful.

No clear differences in preparedness between medical schools emerged for this theme.

12.5 Commentary on theme from the research team Professors from each medical school

Some of the dissonance between expectations of medical students and actual experiences as F1s was thought to be due to the way that clinical and practical skills are learned as undergraduates. Much of their training in the early years is undertaken with simulators and models and students worry that it will be much more difficult when they have to perform the skills on real people. However, learning on simulators and mannequins, while not a substitute for real clinical experience, does help and means that the transition to real patients is not as difficult as expected. There is though no substitute for experience in the workplace[1], involving deliberate practise with feedback.

There was agreement that the best way to learn how to deal with acute patients such as cardiac arrest was to be there when it happened. Teaching acute management in a classroom cannot compensate for the learning gained from being there at the time. Students need to be encouraged to spend as much time as possible on acute wards.

Reference

[1] Issenberg SB, McGaghie WC, Petrusa ER, Gordon DL, Scalese RJ. Features and uses of high-fidelity medical simulations that lead to effective learning: a BEME systematic review. *Medical Teacher*, 2005. 27(1): 10–28

Chapter 13. Prescribing

A particular area of clinical practice which was highlighted in responses during all interviews was the preparedness to prescribe. This is one of the biggest steps in practice in the transition from student to F1. Prescribing is described as consisting of two related but distinct areas: the basic science and pharmacological knowledge required to understand drug effects, interactions and contra-indications, and the actual mechanics of prescribing, such as calculating dosage, and writing up a prescription and drug chart. One relates to a knowledge base, the other to practical and procedural skills, although both are equally important in the development of skilled practice.

13.1 Newcastle Graduates

13.1.1 Expectations of Newcastle Primary Sample

Prior to starting F1, prescribing was the area of practice that was most commonly reported by new graduates as a gap in preparedness to start work as a doctor. More than half the sample reported problems in this area.

> *"I think prescribing is the biggest, the biggest worry for me"* (NPS224, first interview, quartile 1)

The distinction between pharmacology and prescribing was highlighted by respondents:

> *"I feel fairly confident about prescribing a few drugs and I understand the principles of prescribing, I understand the actual process of doing it but I feel that my pharmacology is severely lacking…a huge, huge gap"* (NPS194, first interview, quartile 1)

Some respondents were specifically critical of the teaching they had received in this area, but others saw it as an area in which they could only become proficient and confident once they started the job. However, they expected they would make mistakes. Illustrating the heterogeneity of the sample, there were a few respondents who did feel prepared for prescribing, and did feel the teaching was adequate.

> *"Prescriptions aren't too bad because again we had a lot – we had teaching on that and sort of covered that a lot in medicine"* (NPS24, first interview, quartile 4)

There were three people in the sample who had previous experience of prescribing from earlier, pre-medical school, employment, which gave them some confidence -but they also reported this was a weak area.

> *"…if it wasn't for the fact I prescribed before, I really would have no idea you know"* (NPS146, first interview, quartile 2)

Experience of Newcastle Primary Sample

At the end of their first placement, some F1s still felt they had been lacking in preparation for prescribing.

> *"I think the only real thing [that could have prepared me more for work as an F1] is medication, I think we should, I think we could have probably had a little more pharmacology teaching."* (NPS143, follow-up, quartile 2)

> *"Prescribing, we did not get much training about this, I've had experience as an x [previous clinical training before medical school]. The pharmacology teaching was very poor"* (NPS146, follow-up, quartile 2)

> *"We really never started in earnest doing any prescribing until the final year. It seems a bit late because we could make our mistakes earlier and learn from it."* (NPS65, follow-up, quartile 3)

Some F1s took the view that prescribing was something that you could only really learn about once you started work and were able to apply knowledge in practice.

> *"I know now I feel confident to prescribe certain things. I think that was probably one of my more shaky subjects at Uni. You know things like learning doses and learning drugs when you haven't got a context to put it in it's really, really hard and it's just names."* (NPS224, follow-up, quartile 1)

Respondents felt well supported by pharmacists attached to wards and available to contact for advice either face-to-face or over the telephone. F1s also reported that pharmacists would contact them directly if an error was made, such as forgetting to sign a form, or even minor omissions.

> *"The pharmacists are always on the phone, like looking through the drug charts, making sure there's nothing wrong, so it's quite good in that sense, yeah."* (NPS181, follow-up, quartile 2)

> *"The pharmacists on the ward are really good, easy to ask"* (NPS93, follow-up, quartile 3)

> *"I would say the pharmacists are pretty good in [Hospital], they usually tell you when you are making a mistake or what needs to be changed"* (NPS182, follow-up, quartile 2)

Some respondents found their knowledge of drugs was lacking, in terms of not being aware of some less common drugs, but also not being prepared for prescribing even common drugs.

> *"One of the things I've noticed is doses of medication… obviously you are always going to come across drugs that you've not used before and you do not necessarily know the dosages but I think you just feel a little bit silly when you don't know common doses"* (NPS143, follow-up, quartile 2)

> *"…the whole interaction with different things [we were not prepared for that]"* (NPS108, follow-up, quartile 3)

> *"Prescribing was a big thing I just wasn't prepared for... you didn't know which drug of all the antibiotics or what doses, how many times a day and for how many days for example, all those sorts of things."* (NPS22, follow-up, quartile 4)

Many respondents mentioned the prescribing exam that they were all obliged to take (see section 13.6 below), and which the majority initially failed (the assessment requires they score 100% at some point during the year). Some referred to the strict marking of the exam.

> *"The prescribing exam… you have to get 100% and it's quite pedantic with marks. But it means that everyone ends up sitting the exam. I think it is quite good as it brings you up to speed a bit on what you maybe should have been doing in the final year of med school".* (NPS65, follow-up, quartile 3)

> *"I failed my prescribing exam. I prescribed paracetamol and wrote on the kardex "paracetamol qdf" and everything else was fine and [only] I put one of the times, 8 o'clock, and so failed my prescribing exam because I missed out the time...paracetamol you give four times a day or regular analgesia and the pharmacist wrote on the paper 'why on earth is paracetamol prescribed once a day?'"* (NPS209, follow-up, quartile 1)

Mistakes

Respondents reported making more errors in the area of prescribing than in any other area. This may be in part because of respondents' sensitivity to the issue, rather than a real higher incidence, as some of the errors were very minor.

> *"I mean there's obviously things like getting drug dosages wrong because you are not familiar with the drugs or, you know, you confuse it with something else when you are prescribing it"* (NPS24, follow-up, quartile 4)

> *"I prescribed something to the wrong patient … but like luckily it was only some peppermint capsules. But it was while I was on nights … so I was very tired"* (NPS93, follow-up, quartile 3)

However even minor errors may have impacts on patient wellbeing, and some were of more significance.

> *"Maybe prescribing the wrong type of analgesic".* (NPS194, follow-up, quartile 1)

> *"I made one mistake where I didn't prescribe a man something which the registrar has asked me to prescribe… I just forgot… which had some consequences for the patient… because the man had a fit"* (NPS66, follow-up, quartile 3)

Some errors were attributed not to failures of knowledge or practical skill, but to the pressures of working in a pressurised environment.

> *"I've actually not realised let's say that somebody was on maybe two blood pressure tablets already rather than one...that's the kind of thing, I mean it's not you know a major mistake… when you're under a lot of time pressure, you're asked to sort of do several things at the same time and sometimes it ends up being a twelve hour shift and sometimes it's possible to misread things…I think once I may have prescribed somebody erm co-codamol and codeine"* (NPS9, follow-up, quartile 4)

13.1.2 Newcastle Triangulation

Respondents in the triangulation sample identified an imbalance in the extent to which the undergraduate programme addressed the two elements of prescribing, with the pharmacological knowledge underlying prescribing practice lacking.

> *"I think we have upped the stakes in the exams about the nuts and bolts of writing a prescription if you like and working out the dose and I think those skills are probably a little bit better but I think that the students' knowledge of pharmacology doesn't always appear very great on the ward, say for drug reactions or you know what to do with allergies etc…I would say there is more of a gap in that domain"* (N Undergraduate Tutor 2)

There was recognition though that despite its scientific basis there are aspects of prescribing that can only really be developed with experience of real, complex cases.

> *"…although we teach them about drug treatments and…they write about the choice of drug treatments and doses and what have you, but you are never quite sure how much that will generalise out into real life clinical situations ... I suspect that is an area where they will probably need quite closely supervised clinical practice in that situation"* (N Undergraduate Tutor 1)

> *"I think the prescribing issue, you know, until you have actually been in a position where you are regularly prescribing…I think it is unreasonable to expect that they should always hit the mark every time especially when, you know, it has taken a lot of us quite a few years to achieve"* (N Undergraduate Tutor 6)

Summary of 'Prescribing' for Newcastle graduates

Prescribing was the area of practice that was the most commonly reported in terms of lack of preparedness for practice. Prescribing was also identified as the weak area by a small subgroup of graduates who had learned about prescribing prior to starting medical school. Concerns focused on: knowledge of pharmacology, choice of drugs, the practicalities of calculating dosages, as well as concerns about interactions and contraindications. Some graduates were critical of the teaching but some were of the view that this was an area that needed to be learned during practice.

At follow-up prescribing continued to be an area of concern. Some F1s reported that they felt the medical school could have prepared them better, whereas others reiterated that it was something that needed to be learned in practice. Lack of knowledge covered the full range from not knowing which drugs to prescribe to calculating doses. Generally the F1s had been well supported by the pharmacists who provided regular assistance and feedback. More errors were reported as being made in relation to prescribing than any other area of practice.

A perception from the triangulation data was that the ability to prescribe was a major step up in a new F1's practice. The clinicians concurred with the views from the F1s about what the problems were – again, a range of areas were named ranging from gaps in pharmacological knowledge to problems calculating dosages and writing prescriptions. There was recognition that these are skills which can only be developed with real patients in the workplace.

All datasets agreed that prescribing was a weak area.

13.2 Warwick Graduates

13.2.1 Expectations of Warwick primary sample

Most final year medical students felt that they were not prepared because there was *"too little emphasis on practical applications e.g. explaining BNF, writing up drugs and dosages"* (WPS6, first interview, quartile 3)

> *"For me the major one is practical pharmacology because we spent a lot of time studying pharmacology and I really don't feel very prepared for that in a practical kind of way."* (WPS4, first interview, quartile 1)

> *"I think, on that course it would have been useful to have more practice of filling in drug charts and prescribing oxygen, particularly, writing up regimes for warfarin and insulin, sliding scales, which, although they've been mentioned in passing over the four years, I don't feel particularly confident about exactly how to write them up, particularly things like the sliding scales: they vary from hospital to hospital even within the same trust. So I think I don't feel as prepared for prescribing drugs"* (WPS15, first interview, quartile 3)

> *"I think what would have been good is to explain the resources available, so the BNF and various other prescribing tools around the ward just because you can't get to know every drug so in that sense it would have been good teaching what to use and how to use it."* (WPS11, first interview, quartile 2)

> *"My proposal would be that in the first year we have a receptor mechanism course where you just get the idea of transmitters and how receptor mechanisms work, and then the next stage would be a course in general and systematic pharmacology of each system, and the pharmacology that goes with that system, and then a solid course on prescribing and, you know, what's expected of you. And just, I think, repetition in that respect would help."* (WPS23, first interview, quartile 4)

Respondents felt generally unprepared for prescribing as they approached F1. Some felt the relevance of pharmacology teaching during the undergraduate programme had not been apparent, and that it could be better placed in the course, although some knowledge gained during clinical placements had been useful.

> *"For me I didn't feel the pharmacology exam and the teaching actually had any impact on my useful knowledge or my future practice to be honest. The only thing that's changed my knowledge of pharmacology is having good medical blocks where the consultants have pushed [my] knowledge of pharmacology."* (WPS20, first interview, quartile 4)

> *"I don't think it [the course] prepared me to implement pharmacology. It's such a huge part of medicine"* (WPS13, first interview, quartile 3)

Particular issues referred to by respondents included a lack of knowledge about drug selection and calculating dosages, even for common drugs. Some felt that there was too much breadth in coverage of the subject area, and that there should be a focus on the drugs most often used on the wards. Some also felt that the exam should be a guide for what final year medical students are expected to know.

> *"I don't think that that course prepared you well for the everyday drugs you'll be prescribing as an F1."* (WPS5, first interview, quartile 1)

> *"I don't feel I know all the drugs well enough. … Prescribing is an area that I'm probably most apprehensive about. …. You just don't want to get it wrong."* (WPS13, first interview, quartile 3)

The practical side of prescribing was also referred to, such as writing up drug charts on the ward round and prescribing under pressure.

> *"I am sure I will get training and stuff but obviously when it is on a real person it is a bit different and you are worried "oh my gosh" what if I do something wrong?"* (WPS21, first interview, quartile 4)

> *"I think we were taught how to prescribe things fine, but I think I'm still worried about that because I've never done it before, so prescribing I think is going to be a bit scary for the first few times. That's not because of the prescription but timing wise. I'm going to want to look it up, formulae first and check it but won't have time to do that."* (WPS17, first interview, quartile 3)

> *"We've gone through a few drug charts over the last few days and people in the team have been quizzing me on what to do analgesia wise, and if someone has a temperature and things like that...I think I'm going to be quite anxious about it and terrified about putting a decimal place in the wrong place ...especially as I'm doing a paediatrics job"* (WPS14, first interview, quartile 3)

However, some respondents who felt reasonably prepared for prescribing based this on the assumption that they would not be making major decisions independently, and that there would be support available from seniors and pharmacists, and information and guidance available in the BNF:

> *"Prescribing I guess I am not too worried about. In F1 you don't make too many decisions as far as major things go so I think most things I would be aware of what to do....as an F1 I can't actually see that being a problem."* (WPS4, first interview, quartile 1)

> *"I'm reasonably happy where it comes to prescribing because I know for a while I'll be looking in the BNF or asking the pharmacist to know that what I'm prescribing is appropriate for that patient."* (WPS8, first interview, quartile 2)

> *"There are adequate guidelines and you can also ask seniors, refer to the BNF or ask the clinical pharmacist. I think gradually with time that would push the confidence but we have been taught adequately I feel."* (WPS19, first interview, quartile 4)

This person also indicated that he or she would adopt a cautious approach when prescribing.

> *"I know that there are certain drugs which are red flag drugs to me, like warfarin. A certain amount of drugs, you look at them and you think that's generally okay, I'll just start on a very low dose and just see how it goes, but there are other drugs you've got to be careful of them. That is just knowledge, and I do have drugs which I know are red flag drugs and that I will be careful with. I feel that my pharmacology knowledge is okay."* (WPS16, first interview, quartile 3)

One respondent felt confident with prescribing because he or she had completed a pharmacology degree. A few final year students expressed general concerns about making mistakes, but this was not much in evidence except for prescribing.

13.2.2 Experience of Warwick primary sample

As anticipated, prescribing was indeed an area most respondents felt less prepared for during their first placement. Key issues mentioned by the sample were the selection of appropriate drugs; when to start a drug; determining and calculating dosages, particularly in more difficult cases (e.g. renal failure); and making decisions in more pressurised situations, such as under time pressure or on call where there is less support. In these situations respondents sought a second opinion or advice or guidance from whoever was most appropriate in the circumstances - the pharmacist, a senior doctor, microbiologists or experienced nurses. This support from others is double-checked against the BNF.

Prescribing was an area that some were certainly initially apprehensive about and less prepared for.

> *"I think prescribing was an area which I think was, at the start, very difficult. You second-guess yourself on every prescription. Was this safe? Was this correct?"* (WPS17, follow-up, quartile 3)

> *"Initially I was very slow."* (WPS19, follow-up, quartile 4)

Concerns about familiarity with common drugs expressed in the first interview were quickly alleviated with practice.

> *"We are getting more and more used to it and learning the normal dosages of common drugs. We pick that up quite quickly, but I don't think I was fully prepared for that."* (WPS24, follow-up, quartile 4)

> *"After a couple of weeks you get your own formula, your own list of medications that you prescribe regularly, and you prescribe again and again, and you're familiar with those. Drugs that you do not prescribe regularly you are more worried about"* (WPS1, follow up, quartile 1)

The distinction between pharmacology and prescribing practice was made in comments from respondents, with greater uncertainty remaining in their pharmacological knowledge and applying that knowledge, rather than prescribing procedures.

> *"I was okay with the technicalities of how to prescribe, but my knowledge of appropriate drugs was, and still is, I think, very limited."* (WPS20, follow-up, quartile 4)

> *"Selecting drugs is quite hard to do on your own, because you are new to the thing, but again, hospital guidelines are there and hospital policies, and if you follow those you can't go too far wrong."* (WPS11, follow-up, quartile 2)

For some, calculating dosages was not an issue as there was thought to be enough written guidance (either the BNF or pocket-sized information provided by the hospital). Others thought it would be an issue if they were under time pressure as it is not always feasible to look it up or because there is less opportunity to get a second opinion from more experienced staff.

> *"Things like morphine. The first time I was on call I had a call saying can you up this morphine dose and you don't really know."* (WPS 4, follow-up, quartile 1)

Some referred to the prescribing assessment, which the cohort had not performed well at.

> *"I don't think it was because we're unsafe. I think it's because the questions they asked were more difficult than the things that we had been doing. I haven't had any particular incidents where I felt that I was unsafe, or felt I was unable to do things. If I felt that I needed help, I'll ask. I felt equipped to deal with basic prescribing."* (WPS15, follow-up, quartile 3)

Prescribing was one of the areas where the respondents had to ask for help from whoever was most appropriate in that particular situation. The selection of the drug itself was a key issue in these cases.

> *"If I had to prescribe something I needed to get more information about what would be the best thing to prescribe."* (WPS24, follow-up, quartile 4)

> *"In terms of calculations I have had to approach pharmacists on occasions to gain a better understanding."* (WPS7, follow-up, quartile 2)

Mistakes

Some F1s reported making prescribing mistakes. However these were often recognised by pharmacists or nurses and any adverse consequences for patients averted.

> *"I went back and changed it when the nurse or the pharmacist had rung me usually, because things are double-checked, triple-checked…We tend to err on the side of caution when we start, so you don't give enough pain relief, for example, which*

> *doesn't kill a patient, but makes him very, very uncomfortable."* (WPS15, follow-up, quartile 3)
>
> *"we gave [a patient] some fluid, quite slow IV fluid to try and bring her blood pressure up and I was aware that she was already fluid overloaded, and unfortunately she actually became worse. I knew you had to be extremely careful and give it extremely slowly, but I probably should have sought some more senior involvement."* (WPS9, follow-up, quartile 2)

13.2.3 Warwick Triangulation

A general, but not universal, view from all groups was that skills in pharmacology and therapeutics were weak or poor, reflecting final year medical students' own views. The main problem again was seen as the pharmacological knowledge base rather than prescribing procedure. Those with a degree in pharmacology were seen to have a clear advantage and while F1 prescribing may be accurate, it often depended on looking at the BNF or asking others for help, betraying a lack of understanding.

> *"Their pharmacology knowledge is quite limited, although as a house officer their prescribing seems OK."* (W Undergraduate Tutor 9)
>
> *"They don't know about pharmacology and therapeutics. When we started we knew all the common drugs and what to prescribe and when to prescribe them but they don't know the basics really."* (W Undergraduate Tutor 3)

There were a range of views on the ability of F1s to write prescriptions, but the overall view was that they were lacking, possibly because of lack of experience.

> *"There is one area where they aren't prepared and that's prescribing. … I can think of one in particular who said 'But I haven't prescribed this before' so I said it was about time that they got on and did it then."* (W Educational Supervisor 4)
>
> *"nationally there is much less investment in looking at the pharmacology as a discipline. Traditionally courses would be more in-depth delivered an approach to various stages, and here as at other medical schools there is less time devoted to that. There's also a stress in this course on assessing clinical pharmacology therapeutics."* (W Key Manager 4)

Not all were negative though:

> *"I have not actually come across it [prescribing] as a particular problem. I know some people have been doing F1 prescribing assessments. I always check the drug charts when we do a post-take round and they seem to write stuff up OK. They tend to look it up or ask if they are not sure, so it hasn't come up as a problem."* (W Undergraduate Tutor 10)

13.2.4 Summary of 'Prescribing' for Warwick graduates

Medical graduates felt less prepared for prescribing than any other area of practice. There was criticism of how the subject was covered in the pre-clinical years but many were complimentary about the consultant teaching received during the clinical phase. Concerns about prescribing covered all aspects, including knowledge about drugs, deciding which drug to prescribe, calculating drug doses, writing the drug up and considering interactions and side effects.

At follow-up the earlier anticipated concerns about prescribing had been realised in practice and it was the area where mistakes were perceived to be more frequent. The same areas of lack of knowledge were repeated but in addition there was the added concern about having to prescribe under time pressures or when there was less support immediately available such as when on call.

Overall the perceptions from the triangulation data were that F1s' preparedness to prescribe was deficient. Some clinicians considered that this was as a result of less teaching time being devoted to this, others suggested this was possibly due to lack of experience.

All data sets agreed that prescribing was a weak area. The MTAS quartile did not highlight differences

13.3 Glasgow Graduates

13.3.1 Expectations of Glasgow primary sample

Many of the new graduates reported concerns about prescribing; however different respondents had concerns about different elements. Some felt that there were gaps in their basic knowledge; others were concerned about being able to apply this knowledge in practice, and under pressure, while others were worried about taking decisions on prescribing.

> *"Pharmacology, I just feel that I am on shaky ground there. I am not confident of my basic scientific knowledge in that area."* (GPS19, first interview, quartile 1)

> *"It's just how to make the choice of which drug to choose in which situation and even more importantly, interactions and which drugs to use in which patients, things like that so I don't think I know enough about that going into the job."* (GPS5, first interview, quartile 4)

> *"the bit of prescribing that I would be worried about is [not when] the consultant on the ward round says 'oh start them on this, start them on that' but it's when you actually go and see them and you need to start them on pain killers ...it's actually you making the decisions."* (GPS4, first interview, quartile 1)

> *"If I've got time, I think it will be fine but if I am swamped with lots of work, I think it would be quite a stressful area."* (GPS1, first interview, quartile 2)

Some respondents who thought that their knowledge of pharmacology was weak had taken the opportunity to do a student selected module but were concerned about other students who hadn't done this.

> *"I did a special study module or whatever they call it, SSM, I did a pharmacology one and I thought that was quite useful but as a student, most students wouldn't have had that".* (GPS5, first interview, quartile 2)

Some respondents felt that the nature of the PBL course was the reason for their lack of confidence in prescribing, but concerns had been raised with, and responded to by, the medical school.

> *"Because it is a PBL course, because there isn't formalised teaching it's those things that are very difficult to teach yourself and there is very little emphasis on pharmacology."* (GPS20, first interview, quartile 2)

> *"Next year's fourth year will have a different system to what they had this year… I do think they have listened and I do think they have recognised that is probably a weak area."* (GPS5, first interview, quartile 4)

However, there was the view that prescribing is a skill that only comes with practice, and others felt that the support available meant they would not face problems.

> *"I guess prescribing, but you can't practise that I don't really think …….At the moment I've got no idea, but I will probably. It's just something I will have to pick up, but I guess I'm not unprepared, I just don't think you can really prepare that well for it"* (G11, first interview, quartile 1).

> *"Prescribing – yes I feel fine with… I know where to look for information if I need it and I know how to use the resources. The BNF is everywhere, the MIMS is everywhere, so I am not so bothered about prescribing so if I find myself in a situation where I don't know what's going on if I'm not sure then I will just ask someone, you know I've no qualms whatsoever about approaching people, especially within the first couple of weeks or months."* (GPS3, first interview, quartile 2)

Away from pharmacology and drug prescriptions, prescribing fluids was a specific area that was mentioned by several students.

> *"Just knowing how much to give them. How much fluids they need, what kinds of fluids they need. I mean we have had quite a lot of teaching on that but in an FY1 setting there is the knowledge as well and there is actually being able to write a prescription out."* (GPS15, first interview, quartile 2)

13.3.2 Experience of Glasgow primary sample

The majority of the respondents reported feeling deficient in their prescribing at the beginning of the first placement. Some felt that greater guidance or support at the beginning of their placement would have been useful.

> *"I know this is something you learn on the job, but things like medications and drugs, because you're starting out on them the first morning, I think that's very confusing for someone. I didn't have a clue because it's a complicated thing, with doses and making doses. That sort of thing can be quite frightening because you don't have the know-how and it would be good to have had some chat about that before, and having someone going through that with you."* (GPS14, follow-up, quartile 1)

> *"As I've said before, prescribing I'm a wee bit, still a wee bit nervous about because I don't feel as well informed as I should be."* (GPS19, follow-up, quartile 1)

Recognising this as a weak area, respondents reported acting cautiously – 'looking everything up' and noted their willingness to seek assistance. Nurses were mentioned as helpful and there was widespread praise for the helpfulness of ward pharmacists:

> *"There's a pharmacist on every ward I was on and they were all really, really helpful and didn't mind you asking questions, which is really good for me."* (GPS18, follow-up, quartile 4)

Some respondents mentioned difficulties with local hospital prescribing protocols which made prescribing complicated:

> *"…what you learn at university is helpful but it is very different to what you need to know when you are prescribing day-to-day. There are lots of different protocols for things like warfarin and different antibiotics that we weren't really familiar with and we also weren't familiarised with at induction so I think something a bit more, sort of in your hospital and a copy of the local protocols on prescribing."* (GPS4, follow-up, quartile 1)

The majority of comments refer to prescribing rather than pharmacological knowledge, although some mentioned guidance in this area in the form of written guidelines and an online pharmacology module.

One trainee who had undertaken a pharmacology special subject module at university felt that this had helped in giving them a head start over other trainees:

> *"I've undertaken a pharmacy SSM … when I was at med school, so… I felt more comfortable than the other students but I think… yeah, definitely, the other students definitely had issues…With the 'pharmacy' type side of things."* (GPS13, follow-up, quartile 2)

As might be expected, respondents did mention that they had made progress in prescribing over time and now felt much more confident than they had initially done:

> *"I would say the first month or two there was a wee bit of struggle in prescribing and all that just because even though we know the drugs, we don't actually know the correct dosage and the frequency of the medication prescribed. So there was a lot of either phoning up the pharmacist or looking up the BNF. But after doing this for about three or four months now, we can… we can confidently just write out a prescription without looking up BNF …"* (GPS3, follow-up, quartile 2)

Mistakes

Several mistakes involving prescribing were described, mainly relating to dosage and drug choice.

> *"I think I gave someone the wrong dose of insulin. … I think I probably gave them one hundred times the dose that they were meant to get. It transpired that actually the nurses were supposed to make it up and it wasn't supposed to be me, and the patient was fine so nothing came of it so… I mean I'm not sure if I did give them one hundred times the dose now or I gave them the right dose, I can't… you know but they were fine afterwards."* (GPS11, follow-up, quartile 1)

This quote particularly illustrates the type of knowledge gap some trainees have (being unaware of the consequences of such an overdose). Other mistakes were captured before drugs were given.

> *"I've prescribed the wrong kind of fluid for people, but again it's been picked up by other people quite quickly. I haven't done anything drastic because I'm really, probably slightly over-nervous."* (GPS1, follow-up, quartile 2)

> *"I think probably… basic things, sometimes it was prescribing things, you know, prescribing things at the wrong time etc., but nothing disastrous, you know, the pharmacist would say, 'oh, will you change that, they should be getting this at this time'…"* (GPS14, follow-up, quartile 1)

> *"I always ended up under-dosing people. By the end of, like, a long week, if I was doing antibiotics or this and that, I'd always end up just kind of giving the lower normal [dose]. You know, but the nurses are so, on the ball, you know, they pick up on it."* (GPS13, follow-up, quartile 2)

13.3.3 Glasgow Triangulation

A number of respondents, mostly physicians, not surgeons, identified prescribing as an area of weakness and concern among new doctors. Although there was a concern that the current undergraduate curriculum did not seem to prepare graduates well for practical prescribing, it was acknowledged that this was not a new problem but a longstanding deficiency:

> *"I think the main weakness that I have identified from teaching lots of students over the years, both under the old curriculum and the PBL curriculum is I think clinical pharmacology and prescribing. ...I think the new curriculum has not helped this weakness. ...I think [it] is a significant impediment in their function as doctors and also potentially carries a degree of clinical risk …"* (G Key Manager 2)

> *"They seem to have limited experience of prescribing or use of syringe pump or the use of intravenous additives to drip. … But it was not always particularly good in the past, I'm not sure that this is a complete change from the past, it may just be a repeat of a deficiency that has been present for some years."* (G Foundation Year Educational Supervisor 4).

There was a tendency for respondents to conflate deficiencies in knowledge of pharmacology with practical prescribing issues:

> *"I think the knowledge of clinical pharmacology is not as strong as it could be kind of thing, in fact if I had to identify one area of curriculum where our students, the folk we are generating, were deficient, it's that"* (G Key Manager 2)

> *"I think therapeutics is poor as I mentioned before, the general principals of drug usage, drug interaction, principals of clinical pharmacology are not well understood, for example there is a tendency for the PRHOs to write the patient up in hospital for all the drugs which they brought with them when they came in… And perhaps a lack of critical evaluation of whether they should consult or change this list."* (G Foundation Year Educational Supervisor 4)

Again in writing prescriptions the problems were described more in terms of practical prescribing than in terms of pharmacology:

> *"..drug prescribing is abominable and that's things like they don't write in capitals, they don't look up the book if they don't know what the drug is they just write it down so they frequently write the wrong dose...they are not keen to prescribe in the emergency situation...they will think oxygen is a generally good idea in that kind of 'oh yes you look like you could do with a bit of a blow' but they do not write what percentage of oxygen, which in medical terms is poor"* (G Key Manager 4)

The potential for mistakes was considered to be high as a result of the deficiencies in prescribing knowledge and the FY1 doctors did not appear to understand the risks involved as a result of their lack of knowledge but also their attitude towards prescribing:

> *"So the precision of their prescribing is very poor and the pharmacists spend a lot of time correcting it. Much of it is not dangerous except when they come to write up drugs for patients who have come from either another department or primary care and they tend just to take verbatim what was written ...they don't feel familiar with the concept that if you don't know the drug you don't lift your pen until you've read the book...if it is their signature, it is their fault"* (G Key Manager 4)

13.3.4 Summary of 'Prescribing' for Glasgow graduates

Prescribing was the area of practice medical graduates reported most frequently in terms of lack of preparedness for practice. Concerns spanned the full range from pharmacology knowledge to choice of drug and prescribing in a busy ward under pressure. Some graduates felt the PBL course had reduced their ability to learn about prescribing as they felt this was a topic that was difficult to learn yourself. Others felt that prescribing was something that needed to be learned on the job.

At follow-up the majority of F1s said prescribing was an area they were worried about and was the major area where mistakes had been made. The concerns expressed prior to starting work had been realised in practice. F1s reported being well supported by pharmacists and nurses. Concerns ranged from not knowing the hospital protocol to calculating drug doses. F1s reported that help with prescribing had been available to them particularly from ward pharmacists.

Perceptions from the triangulation data noted that prescribing was the main area in which the new F1s were deficient. Concerns were noted more frequently from physicians than surgeons. The potential to make mistakes was considered high. Areas of concern focused on clinical pharmacology, drug usage, drug names, drug interactions, dosages and lack of re-assessment of drugs that patients were on prior to coming onto a ward. Some recognised that prescribing had been a long-term area of weakness for new doctors and one which the new curriculum had not helped.

All data sets agreed that prescribing was a weak area.

13.4 'Prescribing': common themes and differences between sites

Overall there appears to be a general consensus at all three medical schools and from all sources of data that there is a general lack of preparedness for prescribing. The areas of weakness in each medical school generally covered the breadth of knowledge and skills related to prescribing. In addition the major source of error was related to prescribing. Due to the potential for such errors to do harm, this constitutes a significant potential risk. All three sets of F1s spoke particularly highly about the help they received from pharmacists.

No clear differences in preparedness between medical schools emerged for this theme.

13.5 Commentary on theme from the research team Professors from each medical school

There was general agreement that this was the one theme that stood out across all medical schools in terms of both anticipated *and* experienced problems, corroborated by triangulation data from the clinical teams.

However, there was agreement that prescribing is a very complex issue which comes together only after other learning and activities have taken place. It brings together all the strands of learning. Decisions about appropriate management follow history taking and examination, application of clinical judgement, investigation and analysis and synthesis of findings. The management plan may or may not involve drug treatment. However, if there is to be drug treatment this involves then selecting the right drug, considering drug interactions and potential side effects and contraindications, and then identifying the correct dosage. Prescribing is a very high order task and one that is difficult to teach (and learn) in a classroom setting. Prescribing is learned better on the job in practice. Longer attachments and fewer students might be an area for further improvement here.

In the past there were more opportunities for students to observe doctors writing up prescriptions before they had to prescribe themselves. The teaching of prescribing would benefit from more 'on the job' learning. There are many 'mechanical' aspects of prescribing that could be covered with support of the current F1s. This could involve students being on the wards and being asked to write up dummy prescriptions, illustrating how to work well with the BNF, showing how hospital clinicians work with pharmacists, and how to write up a Kardex.

It was gratifying that all F1s from each medical school spoke very highly about the help they received from pharmacists.

13.6 Safe prescribing assessment: Warwick and Newcastle graduates

The safe prescribing assessment was developed by King's College London and used by the London Deanery from 2004. It was adopted by the Northern Deanery in 2006-2007, and repeated in 2007-2008. The assessment takes the form of a written paper of eight questions addressing different aspects of prescribing, which are marked by pharmacists. To pass the assessment F1s must score 100%. The assessment is repeated until all F1s have passed. Where particular problems emerge remedial action may be taken.

The data compared here come from the first rounds for the Northern Deanery Foundation School (NDFS) and Coventry and Warwick Foundation School (CWFS), run in October 2007 and December 2007/January 2008 respectively. Data for F1s who did not graduate from either Warwick or Newcastle is also included, to indicate any differences which may be due to location rather than origin. These results are directly comparable as they used exactly the same assessment paper and marking scheme. The NDFS group had undergone a specific safe prescribing course during the shadowing period, however, which the CWFS group had not. Warwick graduates do have a therapy/pharmacology course during their final year, but this is not targeted at prescribing skills. The weeks prior to the test all CWFS F1s were offered a one hour session taken by a senior pharmacist and they did take the test two months later into their first post than the NDFS group, so would be expected to have gained a little more prescribing skill and experience.

13.6.1 Results of safe prescribing assessment

19% of the Newcastle graduates passed the first round (answering all eight questions correctly) – this is marginally better than for the entire cohort. 16.4% of the Warwick graduates passed this first round – this is a little worse than for the entire cohort.

Table 13.1 gives frequency distributions for Warwick and Newcastle graduates, and their local peers.

Table 13.1. Frequency distribution of prescribing assessment scores for Newcastle and Warwick graduates and remainder of their peer cohorts

	Warwick graduates		Newcastle graduates		CWFS remainder		NDFS remainder	
Score /8	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
0	0	-	0	-	0	-	2	1.8
1	0	-	0	-	0	-	6	5.4
2	0	-	2	.9	0	-	11	9.9
3	2	3.6	6	2.6	0	-	9	8.1
4	7	12.7	16	7.0	1	4.0	12	10.8
5	22	40.0	36	15.7	2	8.0	12	10.8
6	10	18.2	67	29.3	12	48.0	24	21.6
7	5	9.1	59	25.8	5	20.0	16	14.4
8	9	16.4	43	18.8	5	20.0	19	17.1
Total	55		229		25		111	

The Newcastle graduates indicate a more positive skew in the distribution of scores than the Warwick graduates, and this is reflected in means of 6.2 and 5.7 respectively. The means of the remainder of the cohorts indicate a reverse in this position, with a mean for NDFS non-Newcastle graduates of 5.1, and for CWFS non-Warwick graduates of 6.4.

Table 13.2 gives the breakdown of correct responses for each question. The questions referred to are, in précised form:

- Question 1: Write a drug chart for a frail elderly gentleman admitted with pyelonephritis and requiring IV cefuroxime 750mg tds (to be given for 24hours and then reviewed). His usual medication is: aspirin 75mg each morning digoxin 0.0625mg each morning, paracetamol 1g qds.

- Question 2: Write a prescription for a patient going home on morphine sulphate modified release 30mg every 12 hours. A 14-day supply is required.
- Question 3: Write an IV prescription for an urgent loading dose of amiodarone for a 70 kg patient who is in atrial fibrillation and has not responded to digoxin, as a rate controlled infusion 5mg/kg to be administered in 250ml of fluid over 2 hours.
- Question 4: Complete an IV prescription for aminophylline for a 60 kg man with acute severe asthma who has not previously been treated with theophylline and has no known drug allergies.
- Question 5: Tick the box according to which formulations of morphine sulphate SR 20mg PO b.d. regularly, and morphine sulphate 10mg every four hours when required for breakthrough pain would be appropriate to prescribe.
- Question 6: What effect might you expect the co-administration of the following drugs to have on warfarin therapy (more than one effect may apply)?
- Question 7: Classify the following 9 antibiotics for administration to a patient who is documented to have had an anaphylactic reaction to penicillin.
- Question 8: Write a prescription on an inpatient drug chart for an adult patient with known renal impairment and an estimated GFR of 15ml/min who is admitted with an acute infection. Microbiology have recommended meropenem to be given as an IV injection over 5 mins. He has no known allergies.

Table 13.2. Frequency and percentage of correct responses to each question.

		Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
Newcastle graduates	Correct	184	176	212	122	174	171	211	176
	% correct	80%	77%	93%	53%	76%	75%	92%	77%
	Rank	3	4	1	8	6	7	2	4
Warwick graduates	Correct	42	17	31	16	35	40	46	39
	% correct	76%	31%	56%	29%	64%	72%	83%	71%
	Rank	2	7	6	8	5	3	1	4
Remainder of NDFS cohort	Correct	73	54	87	50	68	65	76	70
	% correct	66%	49%	78%	45%	61%	59%	68%	63%
	Rank	3	7	1	8	5	6	2	4
Remainder of CWFS cohort	Correct	22	14	15	13	20	15	21	18
	% correct	88%	56%	60%	52%	80%	60%	84%	73%
	Rank	1	7	5	8	3	5	2	4

There are differences between the results of the two samples which may be related to the impact of the ‘safe prescribing teaching’ in Newcastle. The largest differences are in questions 2, 3 and 4, with differences of 46%, 37% and 24% respectively. These questions relate to the prescription of morphine for home use, intravenous amiodarone and intraveneous aminophylline, all of which are situations which novice prescribers are less likely to have encountered as a student, and for which the teaching session may have better equipped the Newcastle sample. Despite disparities, the rank order of the questions is similar, suggesting there are common strengths and weaknesses in prescribing for a large proportion of F1s.

13.7 Commentary on theme from the research team Professors from each medical school

A test of prescribing (based on one developed at King's College, London) was introduced in the Northern Deanery in 2006. A significant failure rate amongst F1 doctors highlighted prescribing (and thus teaching and learning about prescribing) as an area of weakness. A new framework for prescribing competencies produced by the Medical School Council Safe Prescribing Working Group is a welcome development and should help identify and remedy areas of weakness, and also promote better collaboration between undergraduate and postgraduate education.

CWFS agreed to give the prescribing test to their Warwick graduates to provide comparative data for this study. The failure rate is similar, even without the additional teaching received by Newcastle graduates. This highlights that prescribing is an issue across medical schools. Warwick is now incorporating the assessment formatively in pre-finals therapeutics assessment.

It was not possible for Glasgow graduates to take part in the prescribing assessment. However, in Glasgow there is currently a plan to revise the curriculum and bring prescribing modules back into preparation for practice modules, recognising that there is a need for more practice rather than more pharmacology lectures.

Chapter 14. Communication skills

Communication skills are a key part of clinical practice. Doctors have to manage communication with colleagues and patients in a variety of contexts. Some tasks which involve clinical communication, specifically history taking and handover, are dealt with in other chapters, but general communication with colleagues of different professions, with patients and relatives are discussed in this chapter. Also addressed are more challenging areas of communication, such as breaking bad news and dealing with conflict.

14.1 Newcastle Graduates

14.1.1 Expectations of Newcastle primary sample

Prior to starting their F1 placement the sample reported that there had been a strong emphasis on communication skills teaching throughout their undergraduate course. They felt best prepared with regard to eliciting concerns and expectations within a clinical consultation. Most noted that they felt as well prepared as they could be for the more challenging areas of communication given that they had not practised these in real life situations, and the course had included role play sessions for dealing with breaking bad news and aggressive patients.

> *"... when you get that first hard question, the first angry patient is going to be a bit of a wake-up as well"* (NPS139, first interview, quartile 2)

> *"I mean there's obviously the other bits as well like the real life breaking bad news to people, 'cos that's not something you could ever practise as a student with real people"* (NPS24, first interview, quartile 4)

14.1.2 Experience of Newcastle primary sample

At the end of the first placement, the new F1s saw communication skills as an integral part of being a doctor.

> *"communication skills I felt fairly prepared for...I had a great teacher at Newcastle but you realise once you get on the wards how important they are"* (NPS209, follow-up, quartile 1)

Communication within teams

Asking for help

The large majority of new F1s reported that it had been easy to ask for help when they had needed it. Several respondents reported that it was more difficult to find someone to ask for help when on call at night or during weekends. However the majority of respondents said that they could always find someone to ask for help or advice when needed.

> *"In the daytime there are a lot of people around so it's generally quite easy to find someone that can give you advice or help. At night it's more difficult because there's only ...the registrar who you need to bleep if you need any help"* (NPS18, follow-up, quartile 4)

> *"I would say 95% of the time [I managed to find the help needed] the times that you cannot usually are when you are on call...for example, if you are trying to get in touch with other specialties to come and see a patient in the evening or at night ...they are very difficult to get hold of"* (NPS22, follow-up, quartile 4)

Overall respondents felt that everyone they approached was helpful, approachable and friendly. Many respondents felt that they had asked very basic or too many questions when they had first started their placement but said that it was better that they were sure for patient

safety reasons. Some talked about being well supported and encouraged in their learning when they asked for help.

> *"There's no-one that sort of reacts badly to being asked stupid questions cos' they are all quite happy that you know they understand we're still green around the gills"* (NPS24, follow-up, quartile 4)

> *"Especially at the start, everyone was really kind of...nice...and realising it was all new and that we just needed that little bit of extra help"* (NPS139, follow-up, quartile, 2)

Respondents said that it depended upon the situation who they would ask for help but the majority said that they would typically ask F2s, SHOs and Registrars. Some said they would also ask nurses. Some respondents commented that when asking consultants for help they would have liked them to physically see the patient but they did not feel able to make the consultant do this.

> *"...it's mainly the middle grades, ...registrars and the staff grades are the first port of call, the F2s are very good... the other week I really wanted [the consultant] to physically see the patient, so he could make some adjustments and as it was he said 'no, it's fine you are doing the right things' ...once he said that he was kind of hinting I was not going to see him. I think with a consultant it is quite difficult to say, oh physically grab them and say I want you to come and see this patient"* (NPS65, follow-up, quartile 3)

> *"I would say it's been easy to ask for help. Even if my senior SHO wasn't here and I needed some help, I could ask someone else and they would take out of their way and try to help me if they could...sometimes they just have a quick look....rather than coming and you want them to see the patient and assess the patient by themselves and make a decision"* (NPS182, follow-up, quartile 2)

One new F1 commented that they found it difficult when summarising and asking for help to include all the important information over the telephone.

Working with senior doctors

Overall respondents felt that it was easy to communicate with senior doctors, with several commenting that they were approachable, friendly and supportive. Although some new F1s commented that while they generally found it easy to communicate with senior doctors this was always not the case, which was perceived to be related to the personality of the individual senior doctors.

> *"…it's a mixed bag, I mean some of them are brilliant and …I've bounced ideas off and one or two of them have been supportive…whereas one or two of them don't want to know about what you've got to say to them…"* (NPS224, follow-up, quartile 1)

> *"…well it depends on the person, sometimes with your own consultant it can be fairly difficult [with the] consultants' attitude or management…"* (NPS106, follow-up, quartile 3)

Two respondents made comments relating to visibility of the senior doctors and this seemed to have an impact on whether doctors were approachable or not.

> *"…because they don't do ward rounds and things. They're very rarely actually on the ward ...because all the registrars do the ward rounds…It's quite hard to approach someone who doesn't have a clue who you are"* (NPS93, follow-up, quartile 3)

> *"…they are all very approachable if they've got time but you know when they are busy they are not around, you know a lot of them do work in other hospitals…"* (NPS108, follow-up, quartile 3)

Working with nurses

The large majority of new F1s reported that overall they found communicating and working with nurses easy. Several said that they found the nurses to be helpful and approachable.

> *"…nurses are easy to communicate with…they're very open and approachable"* (NPS8, follow-up, quartile 4)

> *"…they are very approachable and they will ask you for advice and vice versa"* (NPS93, follow-up, quartile 3)

> *"I would say that most of the nurses I've been working with are quite easy [to communicate with]…I'm quite comfortable to communicate information to them and they take into account what I have said and also would tell me if there was anything to do"* (NPS182, follow-up, quartile 2)

Respondents commented that communication had become easier the further into their placement they were and the more they understood the role of the nurses.

> *"I think at first I was getting the hang of exactly what the extent of their role was. Some nurses are more senior and so they take on a greater role and that sort of thing…I found it difficult to ask them to do things for me…you get used to it and actually you start to realise that they are expecting you to and that makes it easier"* (NPS22, follow-up, quartile 4)

> *"I think in the initial stage I think the nurses were a bit bossy…just kind of wanting to let us know what they will do and what they won't"* (NPS108, follow-up, quartile 3)

Some respondents felt that once they had built up a relationship with the nurses, communication was easier, whereas some respondents reported that they had felt like they needed to earn the respect of the nurses and sisters in particular.

> *"…most of the nurses are absolutely lovely especially now that they've got to know us and we know them"* (NPS108, follow-up, quartile 3)

> *"I think at the start they [nurses] like to test you …you have to prove your mettle kind of thing...with the sisters in particular it was very much you had to prove that you were worthy enough for her to respect you…I think if you are generally an outgoing person and you're nice to them and you don't treat them like rubbish"* (NPS139, follow-up, quartile 2)

> *"..I think the sister of the ward initially... it was almost like I had to prove myself…I think she was quite wary of new F1s…"* (NPS143, follow-up, quartile 2)

However, some respondents reported that the nurses would question their authority or they were working toward different goals and this caused friction in some cases or frustration.

> *"…sometimes we have differences…they want to do something quicker but you're doing something else…or you'd want them to do an ECG and they'd rather they'd want you to do it or something like that"* (NPS66, follow-up, quartile 3)

> *"I think it's a bit frustrating when like they're very much sort of keen on what's their role and what's not and they won't do anything outside their role, which can sometimes be frustrating whilst they're on their break"* (NPS93, follow-up, quartile 3)

> *"There is this idea of doctors and nurses sort of maybe sometimes working for different goals...I think I've learnt it a little bit more now that I've started working…"* (NPS224, follow-up, quartile 1)

Working with pharmacists

All respondents who had worked with and communicated with pharmacists reported that they found communicating with them very easy, that they were helpful, friendly and approachable. Several respondents commented particularly about being able to ask the pharmacists questions, and the feedback obtained on errors.

> *"They've all been really helpful and they've been really enthusiastic about you actually asking them. I think they're really keen with any queries that you do ask them…"* (NPS93, follow-up, quartile 3)

> *"Brilliant, we've got a brilliant pharmacist so it's really easy cos he's very easy to chat to"* (NPS224, follow-up, quartile 1)

> *"Sometimes when you send down your scripts for a patient's discharge and you'll write down the wrong thing or…you'll [send down] a controlled drugs prescription instead of a proper one and then they just phone you up and they just try to explain what's going on. They've been really nice"* (NPS139, follow-up, quartile 2)

Respondents also talked about pharmacists being visible on the ward and the ease of being able to contact them.

> *"It's quite easy really...it's perfect to ask a question you know if you've got a question about anything and they're around quite a lot, they're quite approachable"* (NPS9, follow-up, quartile 4)

> *"Because they've got pharmacists on the ward…you can just bleep them and they usually ring back within, either ring you back within sort of ten seconds or they come round to the ward and speak to you…which is really good…you can get advice…"* (NPS181, follow-up, quartile 2)

Communicating with patients and relatives

The majority of new F1s said that they found communicating with patients and relatives easy overall with some commenting that they enjoyed this particular part of their job.

> *"It's not something I would highlight as a weakness. I absolutely adore I mean...it's the best part of the job. It's without a doubt the best part of the job I find it quite easy"* (NPS 8, follow-up, quartile 4)

> *"...I quite enjoyed it, it's quite good fun"* (NPS224, follow-up, quartile 1)

> *"I quite enjoy speaking to patients on the whole..."* (NPS9, follow-up, quartile 4)

However respondents mentioned several areas where they found communicating with patients and relatives difficult and more challenging, for example: patients who had disabilities or were hard of hearing, patients with cognitive impairments and patients with poor English.

> *"Well it's obviously difficult to communicate with people with a physical disability ...and it's difficult to communicate to people whose English isn't brilliant,...it's quite difficult to understand them"* (NPS66, follow-up, quartile 3)

> *"There have been difficult patients where sort of for all sorts of reasons, then the communication, if they're hard of hearing or whatever then there have been difficulties in taking histories...the whole sort of managing the interaction with the patient and making yourself understood"* (NPS18, follow-up, quartile 4)

> *"It's more challenging...[with a patient who] maybe has dementia and obviously doesn't really understand why they're in hospital,...patients who are withdrawing from alcohol ... often they might be hallucinating or very disorientated or perhaps a bit agitated or aggressive"* (NPS9, follow-up, quartile 4)

Respondents reported that they had found it challenging working with patients whose English was not their first language as this posed additional problems, having to work through interpreters or relatives.

> *"...I had to get a translator and everything and that was...I mean we had teaching on this too but it's not as real as would think it would be. And that was just very time consuming"* (NPS139, follow-up, quartile 2)

Several respondents reported that the more challenging interactions they experienced were not with patients but with relatives who were aggressive and angry.

> *"It's actually not really communicating with patients, it's more so patients' relatives...and I think there are certain groups of relatives that have been quite difficult and quite confrontational and accusational [sic] and sort of assume that you're not trying your best"* (NPS26, follow-up, quartile 4)

F1s often felt frustrated because they felt they were trying to do a good job but this didn't always feel appreciated by relatives. They also commented that they felt frustrated when talking to relatives because they didn't always have all of the information or all the answers to hand.

> *"I think relatives are tricky...it's not something I'd appreciated they just always have so many questions about the care and what's going on and a lot of them were often quite angry ...I really don't know, I just find it quite hard not to get angry...because you are obviously trying your best and a lot of the time it's not your fault why things haven't happened and just trying to explain why can be quite hard"* (NPS93, follow-up, quartile 3)

Some respondents reported that they had received undergraduate training on this, which had helped.

> *"I think the sort of skills that we, we picked up during medical school was how to deal with people who have difficulty communicating and things like, that'd been really useful because we'd been able to apply them...so it's not been a complete shock coming across that and having difficulty"* (NPS24, follow-up, quartile 4)

> *"...in 5th year we had a day course on managing violence and aggression ...it was exceptionally good ...thinking back I felt like I was able to deal with the situation"* (NPS8, follow-up, quartile 4)

Several respondents commented on coping mechanisms they had adopted to deal with difficult situations, such as taking nurses with them when speaking to relatives, and asking closed questions when using interpreters or translators.

> *"...the nurses are quite good...that's one of the important things I've learnt that like, to take a nurse with you when talking to families and things...just because they often know procedures and they can answer a lot of questions you can't. And it's nice to have someone to back you up really as well"* (NPS93, follow-up, quartile 3)

Breaking bad news

Several new F1s said that they had been accompanied by a nurse when they had had to give bad news or talk to relatives after bad news had been given. They reported that they had found this to be helpful and supportive. Many respondents said that the training they had received in medical school on communication skills and breaking bad news was helpful in these situations but that nothing could prepare them for doing it in real life.

> *"I would say so [prepared for breaking bad news] I think definitely looking back at the training that we've had and maybe the words to use initially ...I always remember the role- what do you know so far and what do you understand by this and that would help me then to gauge their understanding"* (NPS143, follow-up, quartile 2)

> *"...we have had training on how to break bad news but I suppose that was probably in the back of my mind somewhere but it kind of went out the window because I was so flustered"* (NPS136, follow-up, quartile 2)

> *"...breaking bad news ...it's something we all thought we'd done stuff in medical school, but then , when you actually have to do it on someone...you are actually breaking proper bad news it's quite hard to do and not get emotionally involved"* (NPS93, follow-up, quartile 3)

14.1.3 Newcastle Triangulation

The triangulating sample felt that the Newcastle graduates were well prepared for communication skills.

> *"I would like to say that the local graduates…have absolutely excellent communication skills…"* (N Undergraduate Tutor 2)

> *"I think their communication skills are good"* (N Educational Supervisor 19)

However, while basic communication skills transfer from medical school teaching to the workplace, there was a feeling that the more complex and advanced communication skills could only be expected to develop over time and through observation of real life situations. As with prescribing, it is perceived by the managers and supervisors that the level of expertise necessary to deal with the complexities and contingencies of real cases can only be developed through experience.

> *"Immediately dealing with patients, I think they are very good …but I don't think they have had the exposure to actually practise those communication skills when the patients aren't so well, when distressed relatives are around the place. ...I mean it's a distressing time for all doctors to deal with that sort of thing…but I think again, final year medical students of old had a bit more exposure to that"* (N Educational Supervisor 7)

> *"whilst they are explained about advanced communication, I think the sort of thing of sitting there with a grieving family is something you cannot do until you have seen it…I think dealing with patients' emotions and relatives' emotions and dealing with stressful situations, no matter how often you have a student sitting with an actor or actress, it does not replace the sort of you know the apparent stress that all of us would be under…"* (N Undergraduate Tutor 6)

14.1.4 Summary of 'Communication skills' for Newcastle graduates

Medical graduates reported feeling well prepared for communication skills. They also reported that they felt as prepared as they could be for dealing with the more challenging aspects of communication given that they had not yet practised these in real life situations.

At follow-up F1s reiterated that communication skills was an area for which they felt they had been well prepared and some reported a considerable amount of job satisfaction from their interactions with patients and their relatives. The majority reported it had been easy to ask for help when they needed it (those they asked were usually the next grades up), although nights and weekends were more difficult as there were fewer staff to ask.

Some reported that summarising all the salient aspects of a patient over the telephone was challenging and some would have preferred senior doctors to see the patient but did not have the authority to ask.

Overall the majority of F1s felt it was easy to communicate with other doctors and nurses. There were a few F1s who reported that they did not speak to the consultants as they did not do the ward rounds and did not get the chance to know them. Some commented that communication with nurses improved over the placement as they understood more about the role of the nurse. All F1s were particularly positive about pharmacists who were both easy to access and very helpful. The majority reported that communication with patients and their relatives had been positive. More challenging communications were reported with patients who did not speak English, had disabilities or had some cognitive impairment, as were some more demanding communications with relatives. Generally they felt medical school had prepared them well, but recognised that certain aspects of communication such as talking to patients after they had received bad news could not be completely rehearsed, accepting that this was qualitatively different in real life.

Perceptions from the triangulation data were that overall medical graduates were well prepared for communication skills. However, the more complex areas of communication needed to develop over time through experience.

All data sets agreed that Newcastle medical graduates were well prepared for communication skills. However, the more complex areas of communication skills were qualitatively different in real life and these skills needed to develop over time though experience.

14.2 Warwick Graduates

14.2.1 Expectations of Warwick primary sample

A few final year students stated that they felt fully prepared to ask for help, usually from nurses. The majority of final year students did not comment.

> *"As a student I've actually worked with them before so I actually know the Consultants and I know some of the team already so I feel quite capable to ask questions if I feel a bit confused or a bit lost. I'm not worried about asking if I feel a bit confused or a bit lost. I'm not worried about asking."* (WPS14, first interview, quartile 3)

Over half the interviewees did feel prepared for communicating with staff, patients and relatives, noting that coming in as a graduate with work experience, gave them an advantage in conjunction with teaching and observing good practice.

> *"Communication skills, we have been taught so much about that, and that is always going to be a very important thing."* (WPS16, first interview, quartile 3)

> *"What I saw was a lot of breaking bad news on a Monday morning. Not a great way to start the week about lung cancer, but in itself is a great thing to see, to be able to see someone break bad news well; you can't read that in a book, so it's valuable in itself."* (WPS13, first interview, quartile 3)

Some final year students felt that their age and experience prepared them for difficult communication issues such as breaking bad news.

> *"I thought I was very prepared for dealing with the patients, with my age and life experience, what some people might find tricky, dealing with breaking bad news, and dealing with relatives who are angry or happy or whatever, and often very naturally."* (WPS11, first interview, quartile 2)

> *"I feel like I communicate well, as a graduate coming into another degree and I have worked for a year before I came here. I feel I'm quite competent in delivering what I want to say."* (WPS12, first interview, quartile 2)

Most final year students felt prepared to communicate with a multi-professional team.

> *"In terms of working with the nurses they're probably the easiest to get on with and I've never had any problems with any of the nurses and probably they're the ones that you actually go to when you're in trouble and don't know what's going on because they tend to know more than anyone else"* (WPS11, first interview, quartile 2)

However, some respondents thought that even though they had been taught about communication they felt less prepared to communicate with real patients and relatives, having only developed these skills in artificial contexts.

> *"I don't feel prepared for breaking the bad news, because you don't do it on true patients. You only do it on simulated patients."* (WPS16, first interview, quartile 3)

> *"It's all fine doing it in theory and having lectures on it, but actually saying it to a patient who might be quite upset or might be very ill, it's a different story and I don't feel overly prepared to do that, although I think I can manage with most things."* (WPS24, first interview, quartile 4)

> *"It's more the situations, if a relative is upset about something you've done, coming across angry patients in accidents and emergency and maybe not knowing how to diffuse the situation properly, because you haven't encountered it."* (WPS15, first interview, quartile 3)

14.2.2 Experience of Warwick primary sample

Communication within the team

Asking for help

Respondents expressed comfort in asking for help, and discussed asking for help from all professional groups in their new placement

> *"I think it's always, as in most instances, you go up the ladder, up the hierarchical chain. If you don't know anything, the next step is usually the senior house officer, unless they're not available, and then you go to the registrar, and the consultant; I occasionally go to the consultant because I have very few team members... Straight to consultant only for the big decisions, but the small decisions, they prefer if you work your way up the ladder rather than annoying them with small decisions."* (WPS17, follow-up, quartile 3)

> *"For prescribing, I've talked to pharmacists, I've talked to seniors, and I've talked to colleagues. I don't think there's any area where I haven't asked for help at some point."* (WPS15, follow-up, quartile 3)

Working with senior doctors

Most respondents had found communication with medical colleagues easy. The ease of communication helped F1s to know that they were doing the right things, while structured communication in meetings was noted as a help.

> *"It's a good team of doctors. They are quite easy to discuss things with. Not a problem at all."* (WPS4, follow-up, quartile 1)

> *"I was lucky in that the group of people I was working with, we'd sit down every day and talk about the patients and about what we were doing with them. And I saw my consultant on most days. He would do a ward round, or at least do a round on paper. He'd sit down and talk about the patients with me. And I was very, very lucky in that respect"* (WPS11, follow-up, quartile 2)

Not all experiences were positive, but any problems experienced were dealt with.

> *"It has been fairly mixed. There are some of the senior doctors in one of the departments that will refuse to speak with the junior staff...That can sometimes be quite awkward, when you know that [your] senior staff aren't available, and you're ringing them because you're on the direct request of your consultant to do so. But on the whole, most senior staff are very approachable, and as long as you know your facts, they're more than happy to listen and help you out where they can."* (WPS20, follow-up, quartile 4)

Although most F1s did not refer directly to dealing with conflict, a few did report ways in which they had dealt with issues which seemed to imply that they were prepared.

> *"I suppose my biggest challenge has been the other F1 I am working with because I felt that he always asked me what to do which is fine if he is not sure but it gets a bit frustrating. Recently his documentation had got really bad so I am constantly having to say to him, you need to write that down"* (WPS1, follow-up, quartile 1)

Working with nurses

Respondents reported mixed experiences of communication with nurses, with some problems arising from multi-disciplinary working.

> *"the challenges are whenever you are working with a lot of people, because people obviously are different characters, I have had a time when I felt that probably felt that maybe I was being undermined as a junior doctor, nurses were undermining my*

position as a doctor. Part of me had to really work hard to gain their respect." (WPS21, follow-up, quartile 4)

"I suppose you're always concerned that you might not get on with your team. But I haven't really had that problem. I've got on very well with the team, and never had any qualms… So I'd have to say that I'm my instance I've had absolutely no problems or challenges at all with being part of the team." (WPS20, follow-up, quartile 4)

"The problem with the stroke ward is that there are a lot of disciplines on the ward, so trying to make sure that the communication is there so you know what everyone else thinks and does and that sort of thing. We have a team meeting every Wednesday but obviously things are thought about and decided and whatever between those times, so sometimes it is a little more difficult to get everyone, you know. (WPS10, follow-up, quartile 2)

Working with pharmacists

Respondents commented that the pharmacists had been helpful and approachable.

"Yes they're helpful" (WPS2, follow-up, quartile 1)

"Well I do check the dosages and use the BNF so it's all right I think and the pharmacists are very good and will tell you if they think it's wrong." (WPS14, follow-up, quartile 3)

"No, we have wonderful pharmacists here" (WPS10, follow-up, quartile 2)

Communicating with patients and relatives

The majority of comments that respondents made about communicating with patients and relatives were related to difficulties with language.

"I've not come across as many language difficulties as I was expecting in communicating with patients. I've had a couple of people where I required interpreters to talk to any depth with them, but generally that's it." (WPS20 follow up quartile 4)

"Yeah, we've had a few Polish people who couldn't speak any English. Recently, we had a little Spanish lady who couldn't speak any not a word of English. I got round the situation. She had family coming in most days. Also, we found a healthcare assistant who spoke Spanish, and we found another house officer who spoke Spanish, so we managed." (WPS24, follow-up quartile 4)

We have had a few problems with non-English native speakers; on occasion it's taken computer-based translation programmes or waiting for a family friend or a translator to arrive to be able to speak to a patient. But on the whole, not really. Where I work is quite an English-speaking area." (WPS4, follow-up quartile 1)

"Most of them, fine. There have been a few who don't speak English, so I've been drawing pictures. The family sometimes it's a bit more…tricky. You sometimes find that they ask you questions, and you explain things to them and you say, is everything clear? Do you want to ask any more questions? They say, no that's fine, thanks, and then either they come back the next day and ask you exactly the same questions again, or another member of the family comes in and asks you exactly the same question again. So you do find yourself repeating the same information over and over. But it seems that patients don't talk to their relatives, quite often so you have to make sure that you're not saying anything to anyone that other people don't want them to know. Like sometimes people have a bad diagnosis and they don't want their wife or whatever to know, so you just have to make a note of it." (WPS6, follow-up quartile 3)

Breaking bad news

The F1s had had some experience of breaking bad news but did not feel fully prepared, seeing it initially not as part of their role, until perhaps realising that 'bad news' is a broader category than they had considered.

> *"I haven't really had to do much breaking bad news, only when operations have gone wrong. I suppose that is quite bad news actually if they have to go back to theatre. That is pretty bad news. I have had to do that a few times. But it has been ok really."* (WPS1, follow-up, quartile 1)

> *"We didn't ever have to break bad news. We were taught all about how to do it: giving a warning shot, if you are breaking bad news to repeat, to check whether they've understood what you've said; giving them the opportunity for questions. So I knew exactly how to do it, it was just actually thinking, oh gosh, I'm really breaking quite a serious bit of news to a person who has no idea. You can't really be prepared for it until you actually have to do it."* (WPS24, follow-up, quartile 4)

> *"One of my assessments with my consultant was breaking bad news…usually it is the consultant who does the break the bad news, especially during the day and you know, I think it is an art really. Sort of like knowing the right words to say and when to say them. Oh yes it is practice."* (WPS21, follow-up, quartile 4)

14.2.3 Warwick Triangulation

Most respondents thought that final year students and F1s were well prepared and good at communication with colleagues, patients and relatives. Generally the respondents did not distinguish between these different groups.

> *"On the whole I have been pleased with them. There is a lot of emphasis on communication skills which is good in a general practice setting as you really need to be good at that. I think that they do well really on the whole. I have been pleased with how they perform when I teach them."* (W Undergraduate Tutor 6)

> *"From the patient point of view they seem to be very well prepared. They are very polite and ...I think the way they deal with patients is actually very good. So from that point of view, from initial point of contact with the patient I think in terms of in hospital, primary or secondary care, I think with supervision they are basically alright."* (W Undergraduate Tutor 2)

> *"Oh excellent in terms of speaking to seniors, they are very good at actually coming and saying they don't understand something. Most of the students come and say these are our learning needs."* (W Undergraduate Tutor 2)

> *"My general impression that when it comes to interpersonal skills and interview techniques they are very well prepared in doing that"* (W Key Manager 4)

One respondent in this group reported that he or she encouraged students and F1s to ask for help.

> *"When I have students and newly qualified doctors in my practice I always say that it's ok to come and ask me and they come in and ask about every patient but that's alright. I would rather they did that then I know that they are safe. It's the ones who sit behind closed doors all day and I wonder what they've been doing that worry me. It's really important to know the limits of your capabilities."* (W Undergraduate Tutor 7)

One respondent in this group thought that F1s were not prepared for breaking bad news but thought that this was only something which came with practice and F1s were not expected to do this on their own anyway.

> *"I suppose they have a limited experience of say practical issues and breaking bad news. I think that's probably addressed in their undergraduate course but I think it's something that they probably feel inexperienced at to start with. And we don't really*

encourage them to do the serious breaking bad news, that should be a senior SPR or consultant should do that. ...Perhaps we should make it important that they sit in with us when we are breaking bad news just to patients and their relatives. But they obviously don't have much experience of this naturally." (W Undergraduate Tutor 4)

14.2.4 Summary of 'Communication skills' for Warwick graduates

Most of the medical graduates reported they were well prepared in terms of communication skills. They felt they were prepared to ask for help when they needed it. Some of the graduates referred to their own age and life experience which gave them additional skill at dealing with the more complex types of communication.

At follow-up the majority of F1s reported that communication was an area they felt they were well prepared for. Again some referred to their maturity and life experience as added experience. Complex areas of communication like breaking bad news were recognised as more challenging and something they could not be fully prepared for in advance of the real thing. F1s reported it was easy to ask for help and the staff asked were mainly doctors, nurses and pharmacists.

Perceptions from the triangulation data were that new F1s were generally well prepared for history taking. They also thought that F1s communicated well with all staff and asked for help appropriately and were well prepared for team working.

14.3 Glasgow Graduates

14.3.1 Expectations of Glasgow primary sample

The respondents generally felt that they had been well prepared for dealing with patients.

> *"I think I can interact with patients quite well, I think that's quite a big strength of our course that I could walk into a ward and I could chat with a patient, I could probably make them feel quite at ease and take a comprehensive history and probably examine the patient quite well".* (GPS14, first interview, quartile 1)

This was attributed to the good training in communication skills and clinical skills in their course and particularly the work with the actors.

> *"Yeah communication is very well taught in Glasgow I think so I have no problems in that area".* (GPS5 first interview, quartile 4)
>
> *"It's a safe environment to learn in"* (GPS3 first interview, quartile 2)

14.3.2 Experience of Glasgow primary sample

Communication within the team

Asking for help

Respondents commented that generally they found it easy to ask seniors and nurses for help and support.

> *"When I needed help I didn't have any problems going and asking for help or how to find that help"* (GPS13, follow-up, quartile 2)
>
> *"I'm one of these people that I would rather ask a stupid question than do something stupid myself, so kind of pretty much anything I could ask folk for but I would tend to go through my SHO first, I wouldn't go straight to my consultant..."* (GPS2, follow-up, quartile 4)

However some respondents did report that it had depended upon the situation or who you asked as to whether it had been easy or difficult to ask for help or if they had received the help they required.

> *"I find it quite easy from most people. Some individuals it's quite difficult to ask help from them...I think that's their personality – you shouldn't be bothering them with minor FY1 problems, you should be able to deal with that...it could anyone. There are some nurses that you wouldn't ask to give you a hand with, there are some seniors that you really don't ask, there's the occasional consultant..."* (GPS1, follow-up, quartile 2)
>
> *"Usually not difficult at all actually, but it all depends on the approachability of the seniors..."* (GPS19, follow-up, quartile 1)
>
> *"The one thing that I did find difficult was asking nurses to do things...somebody that's been doing the job for a long time and then somebody who's just been in for a few weeks coming to ask to do things, like that relationship was a bit difficult at first..."* (GPS18, follow-up, quartile 4)

Working with senior doctors

New FY1s commented that they had found senior doctors to be approachable and had not found it difficult to communicate with them.

> *"It was not a problem at all [communicating with senior doctors]. It was just a case of going down the corridor and knocking on their door, they were very, very approachable and they were all really keen to listen to you and give you advice,*

> *there was actually no problem at all trying to get hold of seniors"* (GPS2, follow-up, quartile 4)
>
> *"I feel quite easy to communicate with my SHOs and stuff. My consultants I'm a bit more intimidated find that I get a bit more tongue tied and nervous but again that comes down to their personalities..."* (GPS19, follow-up, quartile 1)

Working with nurses

There were some mixed reports regarding communication with nurses. Some respondents felt that they were approachable and helpful whereas some respondents reported that they had found it more difficult to communicate with nurses. Where respondents had reported difficulties this was due to negative assumptions that nurses had about FY1s or the demands that nurses placed upon the junior doctors.

> *"I found the nurses fantastic at the hospital I was at. Of course, you kind of get some people who you have personality clashes with...but I would say that 99 percent of the nurses I got on great with and you know they were really good at weekends, they would bend over backwards...if there was anything they could do for you they would try and help you as much as possible"* (GPS 2, follow-up, quartile 4)
>
> *"Nurses can be quite demanding on FY1 doctors and sometimes they tell you what to do. Sometimes you feel your role is being challenged…"* (GPS3, follow-up, quartile 2)
>
> *"That's harder, much harder [communicating with nurses] A lot of the nurses viewed you with suspicion and automatically assumed you were going to be rubbish"* (GPS1, follow-up, quartile 2)

Working with pharmacists

New FY1s felt that communication with pharmacists had been good commenting that they had been helpful and approachable and had given advice and guidance.

> *"...the ward pharmacist is excellent and I'd go, right talk me through it, she did and then thereafter it really wasn't a problem at all...they're quite happy to be asked and they're approachable"* (GPS14, follow-up, quartile 1)
>
> *"there's a pharmacist on every ward I was on and they were all really really helpful and didn't mind you asking questions, which is really good for me...always there to back you up and always on the phone if there was something like perhaps more complicated drugs"* (GPS18, follow-up, quartile 4)

Communication with patients and relatives

Communication with patients and relatives was an area where this sample felt fully prepared and at ease and many recorded deriving considerable job satisfaction from their interactions with patients:

> *"...that's a really good part of the job, it's a really nice part of it."* (GPS14, follow-up, quartile 1)
>
> *"I haven't found it difficult at all. I can normally communicate quite well with patients both on a sort of social level, having a chat and sort of building up a rapport with the patients and taking a history and things. I haven't really found a problem at all."* (GPS18, follow-up, quartile 4).

A couple of respondents pointed out that the Glasgow medical course places a large degree of emphasis on communication skills, so it is perhaps unsurprising that trainees felt strong in this area. Nonetheless, one respondent felt that there were aspects of communication which could have received more coverage at university – in particular communicating with patients who were suffering from dementia and communicating with children.

Breaking bad news

Some respondents reported that they had practised breaking bad news in their undergraduate training and felt well prepared for this. However one respondent reported that whilst they had received training in this area they felt ill prepared for the families' responses.

> *"[well prepared for] probably being able to talk to patients and knowing what kind of tone to talk with people and how to approach difficult things. We had quite a lot of that on the course and that I felt fine with…someone who's been given a really bad diagnosis, diagnosed with a cancer or something upsetting or those types of things…bad news would be fine"* (GPS1, follow-up, quartile 2)

> *"I think actually in my first week I was asked to discuss a 'do not resuscitate' order with the family of a patient who was dying. I felt ill prepared for their response, because we had practised breaking bad news and talking about these things which was fine…but having had the family disagree with the decision that had been made clinically…I found that quite difficult to deal with…"* (GPS4, follow-up, quartile 1)

14.3.3 Glasgow Triangulation

There was almost universal agreement among the respondents that the Glasgow FY1s were strong on communication skills.

> *"Their sensitivity, their holistic approach to medicine, their communication skills, their sort of respect for autonomy, these sorts of things, are very good at that sort of thing and I think that they are almost universally fully prepared for that and I know this through interaction with them, seeing, I mean I obviously see a lot of students in the latter stages of their undergraduate training and also see a lot of foundation year doctors and as a consequence you know it's simply through sort of practical, sort of hands on experience. I think they are generally very good at that"* (G Key Manager 2).

They were also generally felt to be good at asking for help.

> *"They are not backwards at coming forward to the point that I've said to one or two because they will page me directly about things which they should be discussing with a registrar"* (G Foundation Year Educational Supervisor 6).

14.3.4 Summary of 'Communication skills' for Glasgow graduates

Medical graduates reported they felt well prepared in communication skills.

At follow-up all of the F1s reported communication skills as an area where they felt they were well prepared. Some F1s reported feeling a considerable amount of job satisfaction from their interaction with patients and their relatives. Some F1s mentioned that they did not feel fully prepared to deal with some complex communication such as dealing with families over resuscitation issues. Other more challenging areas were interactions with disabled patients and dealing with the parents of a sick child. Asking for help and communicating with other members of the team were also reported positively. Nurses had been slightly more difficult especially when several demanded their time at once. Pharmacists had been particularly helpful.

Perceptions from the triangulation data were that the F1s were well prepared in the area of communication skills. They also commented that they were very confident about asking for senior help.

14.4 'Communication skills': common themes and differences between sites

The data from all datasets at all three medical schools indicates that communication skills are an area that new F1s are prepared for. Complex areas of communication such as dealing with issues following bad news were recognised as more challenging and something they could not be fully prepared for in advance of the real thing. Communication with staff and asking for help were also areas of preparedness.

No clear differences in preparedness between medical schools emerged for this theme, except that maturity may have significance in complex communication as the Warwick graduates commented on this and it may be a feature of Graduate-entry.

14.5 Commentary on theme from the research team Professors from each medical school

Communication skills are sometimes flagged up in a critical way by older doctors trained under a former curriculum. Comments are often focused on F1s being good at communication skills but at the expense of more 'useful knowledge' or skills. However, knowledge gaps might be more amenable to learning later 'on the job' prior to needing to make decisions. Time is rarely available with regard to ideal communication skills, thus communication skills needed to be honed in advance of having to deal with the natural and unplanned expressions of emotion and anger that might be part of supporting a patient and their relatives. Added to this is the knowledge that communication skills' training is evidence-based. If skills are taught they improve overtime but with ongoing teaching and assessments these skills are less likely to decay[1, 2].

References

1 Silverman J, Kurtz S, Draper J. *Skills for communicating with patients*. 2nd edition. Radcliffe Medical Press, Oxford, 2005)

2 Makoul G, Curry RH. The value of assessing and addressing communication skills. *JAMA* 2007, 298: 1057-1059

Chapter 15. Use of a learning portfolio

A key part of the Foundation Programme introduced in 2005 is the learning portfolio trainees must complete to progress. This includes formative assessments, evidence logs and reflective accounts. Different assessments are used in Scotland and England, but the primary aims are the same.

The assessments used in England (and Wales and Northern Ireland) are:

- mini-CEX (mini Clinical Examination). This is a structured clinical examination with a real patient, which is rated by a senior doctor. Scores are given for different elements of the examination.
- DOPS (Direct Observation of Procedural Skills). This involves the F1's execution of a specific practical procedure being rated by a medical or nursing colleague who is qualified to carry out that procedure.
- MSF (Multi-source feedback). This is the rating of a doctor's non-clinical ability by colleagues, not limited to medical or nursing professions. While two forms of MSF are available in the Foundation Portfolio for England and Wales, both Newcastle and Warwick use the TAB (Team Assessment of Behaviour) form.
- CbD (Case-based discussion). This is structured review of a particular case which is rated by the trainee's clinical supervisor or another consultant.

Those used in Scotland are:

- WPA (Work Place Assessment). This is analogous to the DOPS, and prescribes particular tasks to be observed by qualified assessors.
- Multi-source feedback. The Scottish portfolio uses its own MSF tool different from those in the rest of the UK.

While there are no strict prescriptions about how many assessments F1s should complete in each placement, they are encouraged to spread their portfolio work throughout the year, so should have had experience of using the portfolio during the first placement. Different portfolios were used in the different locations: the Northern Deanery and Scotland use electronic portfolios (e-portfolios) in which all assessments are completed online, where they can be reviewed by the trainee and their supervisors. Warwick, during the time period of this project, uses a paper-based portfolio, where forms are returned to the trainee who compiles a hard-copy portfolio for submission.

The triangulating sample consisted of two groups with particular views of the portfolio. Educational supervisors are responsible for entering reports and reviewing trainee entries with the F1. The portfolios assessors in this sample reviewed the 2006-2007 cohort's portfolios at the end of the F1 year. Key managers and undergraduate tutors may also have completed assessments or reviewed portfolios as educational supervisors.

15.1 Newcastle graduates

15.1.1 Expectations of Newcastle Primary Sample

The preparedness of respondents to deal with the Foundation Learning portfolio was informed in part by their experience of an undergraduate portfolio. However, many were unsure of the specific components of the Foundation portfolio and anticipated receiving more information during their induction.

> *"… we did have a whole session on portfolio, where we were able to look at other people's, you know ones before, [that] was quite useful ... and my induction, we've*

> *got a whole session on that as well, so I think that'll be fine"* (NPS108, first interview, quartile 3)

15.1.2 Experience of Newcastle Primary Sample

Following the first placement all the primary sample had completed some portfolio assessments (details of assessments completed are given at the end of this chapter), so spoke from experience in the follow-up interviews. The assessments themselves were not perceived to be difficult, but some respondents felt that completing assessments for the portfolio was time consuming and did not enhance their learning. Some commented that there was unnecessary repetition of tasks completed in medical school and this took away from new learning on the ward.

> *". you do feel a bit silly, going in asking for someone to observe you putting in a cannula cos it's a skill you really by now can, you should be able to do"* (NPS209, follow-up, quartile 1)

> *"…It's actually getting somebody to sit down and do it…and write what you need…I consider [it] as a ticky box paper exercise when I would much rather spend hours doing some work which will actually help me in my job"* (NPS8, follow-up, quartile 4)

Nearly all respondents reported that it was difficult to get a senior to observe them for assessment purposes as they were often working in busy environments.

> *"I think the more difficult thing is actually getting someone to give up their time to come in and go through it, like the assessments in themselves aren't actually that difficult, but it's actually finding the time to do them and finding someone who's willing to do them and that's what's tricky"* (NPS9, follow-up, quartile 4)

> *"…I've done three DOPS and I've done a case-based discussion and those are the easy ones to do but getting somebody to do a mini-CEX and sit and watch you take down a history, no-one wants to do that, and it's frustrating for them, it's frustrating for me and a bit nerve-wracking"* (NPS224, follow-up, quartile 1)

Completing the electronic version of the portfolio had presented additional difficulties for some, with issues of usability in the system itself, the amount of time it had taken to set up initial log-ins and learning to navigate, and practical difficulties in finding a free computer and lack of internet connection in halls of residence.

> *"I think again it's one of those things that the more I've done it the more I've got used to it. Although I would say it is quite hard to get your head around and even now I think I'm still learning fully how to link things together…"* (NPS143, follow-up, quartile 2)

> *"... the e-portfolio took so long to set up and everything, and that became really stressful … we didn't actually get the password for several months and even then, kind of it was only on a temporary site"* (NPS139, follow-up, quartile 2)

> *"It just seems a bit of a waste of time and I think like, trying to find a free computer to do it on is half the problem and you end up taking a lot longer than you need to"* (NPS93, follow-up, quartile 3)

15.1.3 Newcastle Triangulation

The triangulating sample had mixed views on the effectiveness of the portfolio as a means of assessment.

> *"Some of it is useful: the sort of counselling, mentoring, sort of checking on progress sort of role; but a lot of it unfortunately is very much ticking boxes, filling out forms. It's excessively bureaucratic. No one likes it: the trainees don't like it, the supervisors don't like it, I don't and it's very long-winded, no one's really got the time to do it properly ... ultimately these doctors either proceed or they don't proceed and*

> *it's a very elaborate process to get there"* (N Undergraduate Tutor 13, also an educational supervisor)

One comment was that it is too negatively biased, failing to provide sufficient opportunity for positive formative feedback:

> *"I found the national portfolio's particularly, I wouldn't say useless, but not very effective in actually ...documenting how good somebody is ...[There is a] lack of detail and there is room for free text comments but I think they don't really allow you to ... highlight excellence. And I think there is the potential to actually drag people down"* (N Educational Supervisor 7)

Members of the RITA panel suggested that the portfolio is not a detailed indicator of a doctor's actual performance, but can indicate potential problems, while major problems will be captured by ongoing supervision:

> *"Well you can pick them up but you can't pick up why, it's not a good tool for picking up why people are poorly performing but it should pick up their performance"* (N Portfolio Assessor 1)

> *"I don't think it necessarily identifies people per se but I think it provides flags from which you can then investigate further"* (N Portfolio Assessor 2)

> *"we shouldn't be getting to this stage and suddenly be finding that somebody's ...been mucking about... [supervision] through the year should really be picking that up before it gets to the big panel"* (N Portfolio Assessor 3)

This function to flag potential problems was also noted by a Key Manager who identified it as a form of meta-progress check:

> *"if individuals have not engaged with the portfolio...someone who hasn't made any entries whatsoever over a three month period - their educational supervisor will be alerted to go and speak to them, and if the following month there hasn't been an improvement one of the tutors will go and speak to the trainee"* (N Key Manager 7)

One educational supervisor highlighted a concern that the portfolio might be undermined by 'manipulation' by the trainee, and that it is not sufficiently comprehensive to give an overall picture:

> *"I think the portfolio is excellent when the trainee understands it and uses it properly and does not try to manipulate ...but it has been necessary for me to get feedback without the portfolio to pick up on some issues. [By manipulate I mean]... basically trying to make the portfolio look better than it really should...putting things in that have maybe not been appropriate...it raised some questions as to whether they had actually been done"* (N Educational Supervisor 3)

A perhaps less serious form of manipulation is present in the ability of trainees to select instances for assessment, and who will complete the assessments. This, and the organisation of a portfolio (particularly in its paper form), may also provide evidence of performance issues.

> *"if people know they have done something badly they won't get someone to do an assessment on it for them... they're not going to go on a ward round, present a case poorly and then say to the their consultant 'would you mind putting in a mini-CEX on that for me...' they can be very selective about what they accumulate evidence for"* (N Portfolio Assessor 4)

> *"it will also be on the grounds first of all how well they organise their portfolio, how incomplete it is...it can also be a sign of desperately avoiding taking part in the process... also it's useful to look at who people have been asking to do their assessments for them, so it's always slightly worrying when there's hardly any assessments done by consultants"* (N Portfolio Assessor 3)

The confidence of supervisors themselves in using the portfolio is also an issue:

> *"Some [educational supervisors] have really grasped it and got to grips with it and that has made it fairly straightforward. But if... we are not terribly au fait with it ourselves, that has been quite difficult. So I personally have become very reliant on the trainees to show me what they need out of the e- portfolio ... it has been a bit of a kind of trial and error sort of process"* (N Educational Supervisor 3)

> *"The website's quite difficult to use...it's alright to input data into the portfolio, but then to read through it I find difficult"* (N Educational Supervisor 14)

Trainees are required to complete 15 DOPS in the course of F1, and are encouraged to complete four in their first placement. The inference that those procedures they complete first indicate greater preparedness is supported by one supervisor:

> *"they get those assessments ticked off on things that they are doing all of the time so venepuncture... taking a blood gas, doing a blood culture, putting in a urinary catheter ... But there is more complicated stuff that may take them some time to get, get themselves signed up. And they do seem, most of them seem to take a while to get into the idea of CBDs as well"* (N Educational Supervisor 3)

Having to complete assessments early on in the year was seen as detrimental by some though:

> *"I think the first placement is always difficult, because it's a brand new system, they're getting to grips with the clinical work so in the first instance I don't think it's a very good indicator"* (N Portfolio Assessor 1)

> *"To be quite realistic, it is unrealistic expecting them to do anything very much for the portfolio in the first month, most of them are just finding their feet"* (N Educational Supervisor 3)

15.1.4 Summary of 'Portfolio learning' for Newcastle graduates

Newcastle graduates use a learning portfolio and log-book during their undergraduate training. For this cohort of graduates, the portfolio was paper-based and was only used from third year onwards. It included a log-book, some components of which needed to be 'signed off'. However, the portfolio was not directly assessed *per se*, but could be referred by a tutor for evidence of achievement of learning outcomes when they were undertaking end-of-rotation assessment of professionalism. Also guidance to both students and staff in this cohort about use of the portfolio and logbook was minimal. Some of the medical graduates were critical of aspects of the undergraduate portfolio stating that at times it was unrealistic to ask staff to comment on performance after working on the ward sometimes for as little as three hours. The undergraduate portfolio is different to the one used at F1 which they were introduced to during their induction.

At follow-up the F1s' views of the portfolio assessments were that they were not difficult to use, but at times they were difficult to get assessed on, as this required finding staff who were already very busy giving time to assess them. Some commented on the assessments repeating areas on which they had already been assessed at medical school e.g. venepuncture. Access to computers to complete the on-line e-portfolio had at times been difficult.

Perceptions from the triangulation data were generally not positive, respondents commenting that the portfolio assessments were bureaucratic, time consuming and subject to bias. Some clinicians also reported they were not confident in being able to use a portfolio effectively yet themselves. However, the portfolio assessors reported that it was helpful in flagging up a poorly performing doctor.

15.2 Warwick Graduates

15.2.1 Expectations of Warwick primary sample

There were no comments made on assessments at the first interview.

15.2.2 Experience of Warwick primary sample

While most F1s had felt prepared for completing the portfolio, there were issues in actually getting the assessments completed in the workplace.

> *"Well, medical school does prepare you to do these things but actually getting them done in the real world is a different thing. That is not the medical school's fault. So I would say fully prepared for that, but the reality is a pain."* (WPS3, follow-up, quartile 1)

Specifically, there had been problems in finding time to do the assessments and getting someone to sign them off, which undermined the validity of the assessments.

> *"It is difficult to chase people up and ask can you please sign that. You don't always have the form with you and if you are so busy, you know, you don't have the time to take some time out and ask this. It is not practical."* (WPS19, follow-up, quartile 4)

> *"In some ways it is easy because when you ask someone to do it they say 'Oh my God what a waste of time, just give me the form and I'll sign it'. But it does mean you don't get anyone to do it properly and I think they are a complete waste of time, I really do."* (WPS18, follow-up, quartile 1)

15.2.3 Warwick Triangulation

This group of respondents felt that F1s were generally prepared for assessment but that the concept of being assessed was often seen as quite threatening for F1s, especially those who were weak.

> *"I think they find the concept of assessments they have to pass quite threatening at the start and they don't quite know how to get tackling that."* (W portfolio assessors' focus group)

> *"The portfolio probably introduces additional pressure doesn't it, an addition to what we had to go through. We had to deal with the forming relationships and team working and all that kind of thing. Do we push them into more of a downward spiral by putting in something like this that applies more pressure to those that aren't standing up to the pressure very well?"* (W portfolio assessors' focus group)

Completion of portfolios was seen as difficult for F1s, especially the reflective diaries, and educational supervisors in particular thought that they were not a good tool in the present format.

> *"I find the portfolios quite cumbersome to use actually. The paper version doesn't work very well, there is a lot of form filling, and I don't think there is enough time or space actually within the document for open discussion"* (W Educational Supervisor 6)

> *"Some of them do struggle with the value of it [reflective diary] and it's only when they've done it for a year that they think actually you sometimes see when you read the diaries that suddenly the light's gone on and they've suddenly realised that it's actually useful to do it. But all the way through the year they've not really made much use of it."* (W portfolio assessors' focus group)

The portfolios may also provide a focus on assessment to the detriment of a fuller development in practice.

> *"I think the portfolios are good in some respect but I think some of them really go to town on them because they know they are important and it seems to block out other things. They don't learn other things because they have focused so much on doing the portfolios."* (W Educational Supervisor 1)

Having to complete audits for the portfolio was seen as unfair and accruing points for completed audits was unfairly weighted.

> *"I mean, what's the weighting for the audit in the end score, when we score them for their F2 jobs? It's a couple of points isn't it? To write more than one completed audit it's 6. I mean that's a massive score to their total when you think about it, 'completed audit' 'detailed audit for progress' 'or none' and then they can go from 0 up to 6."* (W portfolio assessors' focus group)

> *"We've set a hurdle which most of you can't manage and then we score you on that, that's not fair is it?"* (W portfolio assessors' focus group)

Performance in the portfolios was seen as very important for progression to F2 posts.

> *"We look through them as a sort of interim assessment and the educational supervisor is meant to look through each of their portfolios as they finish their placement and then we look though them all half way through their F1 year because they, in our foundation school and in fact across the west midlands, we use their portfolio in order to determine which F2 job they get."* (W Key Manager 5)

Some respondents suggested that preferred career paths could be identified early on, especially from the portfolios.

> *"the people that want to be surgeons you can tell the minute you open the portfolio because there'll be 16 DOPS all aiming much higher than they need to, but they're not really interested in case-based discussion, there will be one case-based discussion. You can see that slant, you can pick up and say right this one definitely wants to be a surgeon"* (W Portfolio Assessors' focus group)

Having a good portfolio gave F1s an advantage in the future and the system was feeding through the career structure.

> *"There's a huge advantage in the job market because a lot of weight goes on portfolios and again I tell them that that's how it's going to be. You must have a good portfolio if you want to be competitive"* (W Portfolio Assessors' focus group)

15.2.4 Summary of 'Portfolio learning' for Warwick graduates

Warwick graduates referred to prior experience of using portfolios on their clinical placements at medical school, which involved writing up reflective cases. This past experience highlighted concerns for them about the subjectivity in the marking system of portfolios marked by numerous different clinicians.

At follow-up F1s reported that the actual portfolio assessments were not difficult, but finding a member of staff to do the assessment with was difficult. Some F1s lacked confidence in the system, which they perceived to be unreliable.

Perceptions from the triangulation data suggested that the undergraduate portfolio was too narrow and too heavily weighted towards finals grades. As regards the F1 portfolio, clinicians thought that initially new F1s were quite threatened by the process of assessment and this added an extra burden to them which previous years did not have to deal with. Clinicians found the process cumbersome and time consuming. The completion of audits as part of the portfolio was considered to be too demanding and too heavily scored. The portfolio scores were taken seriously and were also used to determine which jobs they got in F2.

15.3 Glasgow Graduates

15.3.1 Expectations of Glasgow primary sample

Many respondents in the first interview were not aware of the portfolio, but those who did know about it expressed cynical views.

> *"The only reason I know about it [the portfolio] is because [a current F1] constantly moans about it and how awful it is and how they think, do they think they get anyone else in any other profession to do this level of crap as she calls it. And you know constantly jumping through hoops."* (GPS12, first interview, quartile 2)

It was considered something that had to be done but was not of much practical use.

> *"Some of the FY1s have said that the modules aren't really that helpful"* (GPS7, first interview, quartile 4)

15.3.2 Experience of Glasgow primary sample

Some respondents commented on the logistics of being signed off for portfolio assessments

> *"It's the time factor and then getting them to sit down and sign off and they can't sign off more than one thing at a time, you have to log in individually for every single thing…they have to log in and out three times to sign you off and people get really fed up doing that. They would much rather go in and tick off"* (GPS1, follow-up, quartile 2)

> *"I did have to hassle her a little bit to get them finally signed off on the computer, so from that point of view it was a bit of a hassle but getting her to come and watch me do them wasn't, it was just sort of tick the box afterwards that caused a bit of a problem"* (GPS18, follow-up, quartile 4)

15.3.3 Glasgow Triangulation

Generally the respondents who had also experience as undergraduate tutors considered the student portfolio a good method of assessment.

> *"On the whole I think they are generally quite a robust method of assessing students. I think there are some deficiencies in the things that they test but on the whole I would have to say that they are broadly a method of , you know, assessing and you know reviewing students' progress which I'm quite comfortable which I think you know it does the job it's intended to".* (G Key Manager 2)

However, several respondents were concerned about the uncritical use of material downloaded from the internet that was included in the reflective commentaries with the portfolio cases.

> *"Well the portfolios are quite good but the main difficulty is that there tends to be a lot of downloaded information from the internet in there"* (G Foundation Supervisor 4)

This was reiterated by another respondent who felt that the portfolio had become an end in itself.

> *"The portfolio, okay….it's interesting you mention that because when we get students here, the first thing they ask is, "Have you got a good case for my portfolio?" The portfolio, in itself, has become an end point rather than coming to fruition. There's a feeling of, once the portfolio case is completed, its mission accomplished. And, in fact, some of them spend their time, instead of actually being on the ward or doing ward rounds, you say, "Where is the student?" And sometimes you actually find them down in the library working on their portfolio rather than… but the portfolio, I mean, to be honest, most of the portfolios I've seen have just been, what do you call it, the reflective commentary bit? It's copied and pasted. An online*

> *thing. Great chunks of it with just one or two words changed to fit in with them. And some cases, the reason you can tell this is that the terms used that we never use. They're only used in America and – yes, so you tend to get one or two sentences at the beginning relating broadly to the patient, then a big chunk, in the middle which has just been copied and pasted with minor amendments and two or three sentences at the end. And that's my experience of the portfolio. So I think maybe there's too much portfolio"* (G Foundation Supervisor 7)

One of the undergraduate tutors who was a GP felt that the students tended to write up the cases as they would in hospital practice rather than using a GP focus.

> *"I think the, when they are doing the portfolio cases I think they tend to think they still have this hospital based model when they come out to us in general practice, portfolios are usually written in a manner for a hospital doctor to look at, they may be not so aware that you can introduce more context into these things for a general practice point of view"* (G Undergraduate Tutor 3).

There was a feeling among respondents that the value of the Foundation electronic portfolio wasn't clear,

> *"Well I think certainly I think there is a lot of paperwork involved or now certainly in the West of Scotland its all on-line, there are a lot of facts collected but the difficulty is what the actual meaning of that is".* (G Key Manager 5)

and that its value could be reduced to a tick-box exercise.

> *"I think the portfolio doesn't actually tell us anything about the preparedness to practise because the portfolio I think we use is simply to log what they have done as part of the box ticking exercise of MMC so I don't think it gives any indication as to the preparedness or indeed how well they may practise because it is just about them meeting the competencies that we are asking them to complete".* (G Portfolio Assessor 1)

Other respondents felt that there were some good parts of the portfolio but its ease of use could be improved.

> *"The foundation electronic portfolio is not always terribly easy to use, and I don't find it intuitive to find my way round. But I'm maybe being unfair, because I'm very, very familiar, obviously with the surgical one. The content of it is adequate, but it's sometimes hard to find a rapid summary, so for example if a Foundation person is applying for ST1, then they tend to come with the paper version which tends to end up very large and difficult to comprehend. And that's a disadvantage, I think. The workplace based assessments that the Foundation people do in Scotland I think are attractive because they are so simple in comparison to what's done down south".* (G Foundation Supervisor 9)

Other respondents used it in addition to other methods of assessment.

> *"I have to say that I, when I am doing supervision I do it in what would be regarded as a traditional way, asking people what they think about the kind of strengths, weaknesses of the post they're in, things that have surprised them, things that they've found easier than they expected etc. And looking at the general experience of the job and I then turn to portfolio and use it as a sort of tick box exercise at the end"* (G Foundation Supervisor 5)

15.3.4 Summary of 'Portfolio learning' for Glasgow graduates

Graduates' use of undergraduate portfolio involved a personal development portfolio that develops over the first three years and in years four and five this becomes the repository for 40 portfolio cases. These portfolio cases are assessed and contribute to the end of attachment assessment of each student.

At follow-up graduates reported that the assessments were not difficult to perform but they were time consuming to do and finding someone to observe them could be at times difficult.

Perceptions from the triangulation data were generally not positive, reporting that it was not easy to use and was a tick box exercise. They found the information was not useful in terms of preparedness nor did it give an indication of how well they practiced.

15.4 Portfolio completion during the first placement

This section summarises the use of the learning portfolios for graduates of each of the medical schools in the study. Due to different structures and processes across sites meaning different information is available; numbers may not be directly comparable. Figures for Newcastle refer to the entire Newcastle-graduate cohort in the Northern Deanery Foundation School in 2007-2008, while those for Warwick refer to the Coventry and Warwick Foundation School. For Glasgow, where a different portfolio means direct comparison is not possible, figures for the primary sample are available, but not for the graduating cohort who form 59% of Glasgow-located F1s.

Table 15.1 summarises the total frequencies of completion of the different assessments for Newcastle and Warwick. The means are comparable, but the standard deviations suggest a broader range in Newcastle (possibly just a consequence of the larger sample). The Newcastle DOPS range is skewed by several F1s completing larger numbers of DOPS (33 completing 10 or more. 85% of Newcastle graduates completed 7 or fewer).

Table 15.1. Range and mean number of each portfolio assessment completed by Newcastle and Warwick graduates in first placement (1 Aug-4 December 2008)

		N	Min.	Max.	Mode	Mean	Std. Dev.
miniCEX	Warwick	64	1	4	2	1.78	.68
	Newcastle	229	0	6	2	1.68	1.04
CbD	Warwick	64	1	3	1	1.72	.69
	Newcastle	229	0	6	2	1.89	1.01
DOPS	Warwick	64	2	7	2	3.20	1.35
	Newcastle	229	0	27	3	4.97	3.54

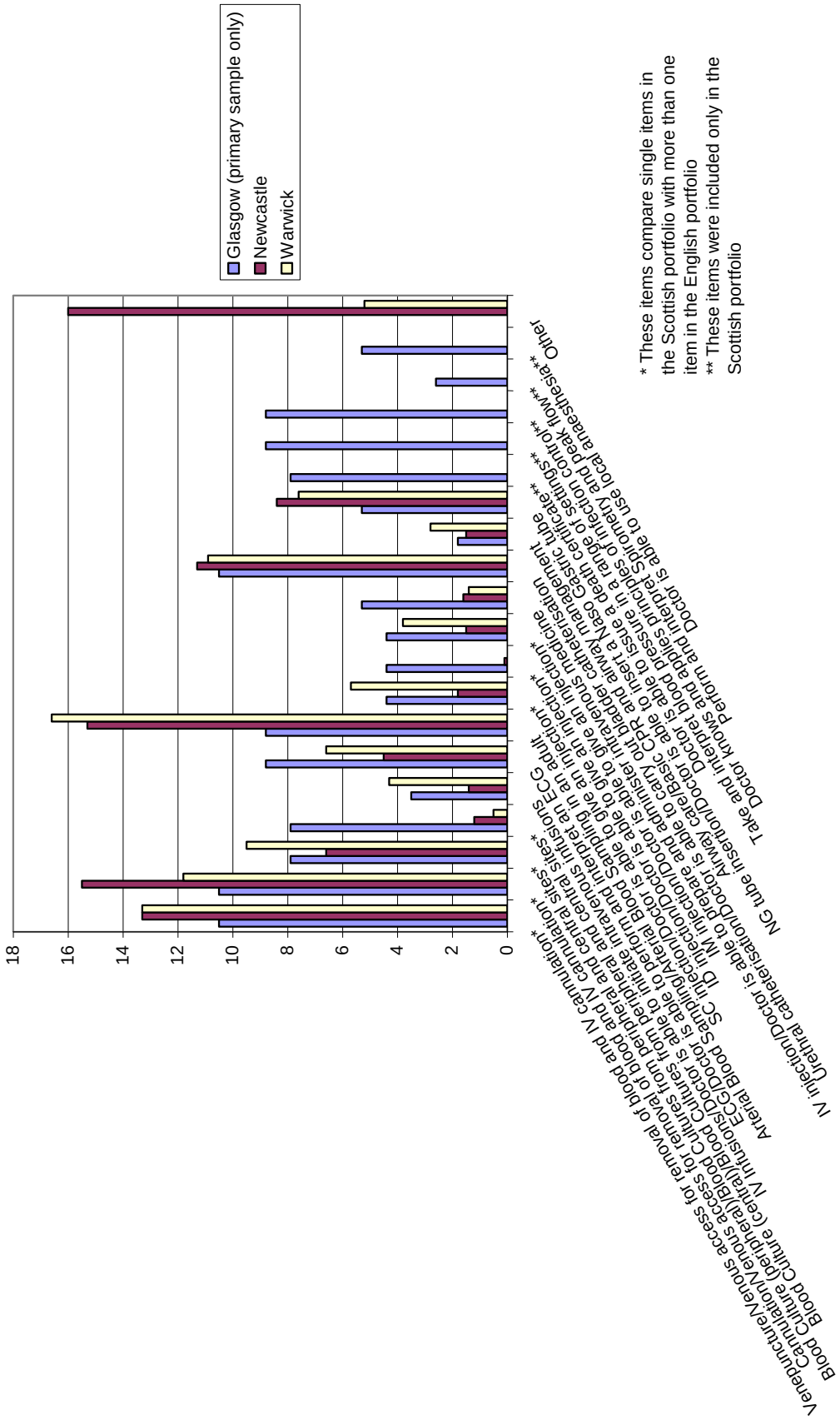
Table 15.2 gives the frequencies of completion of each of the specified DOPS and WPA procedures. Where possible the WPA procedure has been matched with a DOPS equivalent, although this is not possible in every case, and some matches are only partial (for example ‘airway care’ in DOPS, ‘basic CPR and airway management’ in WPA). Whereas table 15.1 includes the total number of DOPS completed, frequencies here refer to the completion of *at least one* DOPS for the specified procedure – so if the person in table 15.1 with 27 submissions had completed 12 venepuncture DOPS, venepuncture is still only counted once in Table 15.2. This gives a view of the ‘popularity’ of each procedure across the sample without being skewed by multiple completions.

Table 15.2. Frequency of completion of each specific DOPS procedure for Newcastle and Warwick graduates. Percentages are the proportion of all DOPS submitted at each site.

	Warwick		**Newcastle**		**Glasgow (primary sample only)**		
DOPS procedure	**Frequency**	**%**	**Frequency**	**%**	**Equivalent WPA procedure**	**Frequency**	**%**
Venepuncture	28	13.3	116	13.3	Venous access for removal of blood and IV cannulation	12	10.5
Cannulation	25	11.8	135	15.5			
Blood Culture (peripheral)	20	9.5	57	6.6	Blood Cultures from peripheral and central sites	9	7.9
Blood Culture (Central)	1	0.5	10	1.2			
IV Infusions	9	4.3	12	1.4	Doctor is able to initiate intravenous infusions	4	3.5
ECG	14	6.6	39	4.5	Doctor is able to perform and interpret an ECG	10	8.8
Arterial Blood Sampling	35	16.6	133	15.3	Arterial Blood Sampling in an adult	10	8.8
SC injection	12	5.7	16	1.8	Doctor is able to give an injection	5	4.4
ID injection	0	0	1	.1			
IM injection	8	3.8	13	1.5			
IV injection	3	1.4	14	1.6	Doctor is able to prepare and administer intravenous medicine	6	5.3
Urethral catheterisation	23	10.9	98	11.3	Doctor is able to carry out bladder catheterisation	12	10.5
Airway care	6	2.8	13	1.5	Basic CPR and airway management	2	1.8
NG tube insertion	16	7.6	73	8.4	Doctor is able to insert a Naso-Gastric tube	6	5.3
					Doctor is able to issue a death certificate	9	7.9
					Take and interpret blood pressure in a range of settings	10	8.8
					Doctor know and applies principles of infection control	10	8.8
					Perform and interpret spirometry and peak flow	3	2.6
					Doctor is able to use local anaesthesia	6	5.3
Other	11	5.2	139	16			
	211	100	869	100	Total	114	100

Figure 15.1 (overleaf) presents this data graphically. Due to the nature of the data, some data points for Scotland are repeated against the relevant English portfolio elements, while there are some only completed in Scotland.

Figure 15.1. Frequency of completion of each specific DOPS/WPA procedure. Where single items in the Scottish portfolio may map to more than one in the English portfolio (such as 'giving an injection') the Scottish figure is plotted each time.



While there are differences between the sites, the relative peaks and troughs of different procedures indicate there are some which tend to be completed in the first placement more than others. Venepuncture/cannulation, arterial blood sampling and catheterisation account

for around half of all procedures assessed in Warwick and Newcastle, and 30% in Glasgow, while airway care, IV infusions and NG tube insertion account for between 10% and 14%.

This variation may reflect the preparedness of F1s to perform these tasks as an assessment and so their confidence in their ability (they may be performing them much earlier, but they choose whether they want a particular instance to be assessed). However, there are alternative explanations: there may be more limited opportunities to perform some tasks in some specialties, or there may be more limited availability of qualified staff to observe and assess them in some placements and for some procedures, than others. Comments from interviews suggest either could be the case.

15.5 'Portfolio learning': common themes and differences between sites

All medical schools used an undergraduate learning portfolio although this was a different format to the one used at F1 level. At follow-up F1s reported that the assessments were not difficult to perform, but often it had been difficult to find staff to observe them as they were busy and the process was time consuming.

Clinicians at Newcastle Warwick and Glasgow agreed that the process was cumbersome and time consuming.

15.6 Commentary on theme from the research team Professors from each medical school

The use of portfolios in undergraduate medical education is a relatively recent development. Although strengths and weaknesses of portfolios in promoting reflection and self-directed learning and their use in assessment are becoming clearer, there are still concerns over issues such as reliability, authenticity and the time involved in supporting their use.

Chapter 16. Identifying learning needs

There is an expectation in *Tomorrow's Doctors* that graduates must be able to identify their own learning needs. This theme focuses on the learning needs of new F1s as identified by themselves and the clinicians who worked with them. The learning needs identified may provide additional information about potential gaps in the new F1s' readiness for practice.

16.1 Newcastle graduates

16.1.1 Expectations of Newcastle Primary Sample

There were no comments from the primary sample on this theme in the initial interviews.

16.1.2 Experience of Newcastle Primary Sample

The learning needs identified by the new F1s at the end of their first placement related to clinical practice, generic skills and personal development. The learning needs identified varied according to the specialty of their first placement: in surgery there were reports of wanting to learn more about different types of surgery and surgical techniques and procedures, while in care of the elderly there were different learning needs, such as palliative care.

Overall, the most commonly cited learning need was patient management, in particular managing acutely ill patients, but also other areas reported by individuals according to their placement specialty, such as managing pre-op patients, management of emergencies, management of the acute abdomen, and ENT. Other clinical learning needs highlighted included: prescribing and pharmacology, antibiotics and microbiology; practical procedures such as ECGs (including recognition of arrhythmias) and chest x-rays, catheterisation and blood gases; hospital procedures such as clerking skills, referral writing and extending knowledge of hospital protocols for the management of diseases.

In some cases, respondents talked of needing to 'brush up' on knowledge gained during medical school, for example core medical and surgical knowledge and anatomy:

> *"…when it got to kind of starting work it seemed like a long time since…we'd done anything on core medicine and core surgical…we're not expected to know a huge amount and to be instantly kind of experienced in everything . . . but when you're kind of faced with a patient and you can't remember anything about the condition that they've got because you've not kind of covered it for a couple of years"* (NPS18, follow-up, quartile 4)

> *"…refreshing my memory of some of the key acute on call conditions"* (NPS26, follow-up, quartile 4)

> *"… [anatomy] has been something I have had to study a lot, so many things that you've completely lost in second year… definitely done it before, can't retain it, I don't know"* (NPS209, follow-up, quartile 1)

Some identified a need to acquire new knowledge about less common conditions.

> *"Some of the more obscure diseases that you see a little bit more, things like myeloma, we didn't have very much teaching about in med school and you have to go away and look up yourself. And especially after teaching the students, you're a little bit more aware of the fact that you are losing a little bit of the knowledge that you had for finals and stuff"* (NPS139, follow-up, quartile 2)

Some identified learning needs related to generic skills. Individual respondents highlighted communication skills, in particular breaking bad news, and team working including coping with difficult team members. Some needs related to personal and professional skills. Here individual respondents referred to building confidence, organisational skills, coping better in

stressful situations, and keeping up to date with current developments. Time management and prioritisation were also an issue for some.

> *"I think sort of time management would be quite strong, just learning how to prioritise and increase my proficiency and manage my job, and again I think recognising acutely ill patients and just developing a calm and structured approach to that"* (NPS9, follow-up, quartile 4)

16.1.3 Newcastle Triangulation

Two key managers commented that F1s are better at reflecting upon their practice than previous generations of doctors, and felt that this was due to encouragement in medical school - reflection on learning and practice is an area in which undergraduates are trained from very early on.

> *"Students now are smarter, cleverer and have more educational awareness as individuals…more prepared for lifelong learning and understanding lifelong learning – using the portfolios and reflective practice and more analytical"* (N Key manager 10)

> *"…they are far more aware of their own strengths and weaknesses perhaps than we were ever encouraged to be, and they are certainly much happier reflecting on what they are doing and being able to sort of access the systems if they are struggling"* (N Key Manager 7)

Despite this grounding, there was still a transition to be made in terms of accountability and responsibility in the balance of service delivery and learning.

> *"Some of them... [are] still expecting that things revolve around their learning and stuff…they've got to now start to take more responsibility for their own learning and equally have to move to learning through clinical practice, whereas they're not gonna get taught; they need to learn how to learn really"* (N Undergraduate Tutor 13)

16.1.4 Summary of 'Identifying learning needs' for Newcastle graduates

Overall the most commonly identified learning need was patient management particularly the management of patients who are acutely ill. Other areas related to the particular placement the F1s were doing. The ability to prioritise and manage time were also areas that were commonly identified.

Some F1s referred to a need to 'go back' to subjects they had covered a few years earlier at medical school finding that this information was no longer at their 'finger tips'. These areas included core medical and surgical knowledge, and anatomy.

Individuals also highlighted learning needs in the following areas: prescribing and pharmacology, microbiology, practical procedures such as ECG, chest x-rays, catheterisation and blood gases. Also some hospital procedures such as clerking skills, referral writing and hospital protocols for the management of diseases were mentioned, as well as breaking bad news and team working including coping with difficult team members.

Perceptions from the triangulation data were that current graduates were better prepared for lifelong learning and better at reflecting on their strengths and weaknesses than earlier graduates had been. The clinicians commented that F1s need to take more responsibility for their own learning and learning through clinical practice.

16.2 Warwick Graduates

16.2.1 Expectations of Warwick primary sample

At the end of their undergraduate education the final year students were only too aware that much learning still lay ahead of them and aware of the need to be proactive in seeking help.

> *"So within, you have to be quite proactive because it's a lot of self-directed learning. If you're proactive and you involve yourself in the team mostly they are willing to teach."* (WPS11, first interview, quartile 2)

> *"I think if I want to go out and get the practice, its available so it's just up to me really to know what I need to do and try and do it."* (WPS2, first interview, quartile 1)

16.2.2 Experience of Warwick primary sample

At the end of the first placement some respondents thought there were no specific learning needs as such, but still recognised the importance of ongoing learning, and some felt they pursued learning not out of need but out of interest.

> *"I don't think there was anything that I went home and said, oh, I really must learn that. Some things out of interest"* (WPS11, follow-up, quartile 2)

> *"I think it's just a case of continual learning. There aren't specific needs. Where I've needed to look something up, then I've gone and done it."* (WPS4, follow-up, quartile 1)

> *Others realised that there are many learning needs, but pointed out that these needs are being met by experience, and will continue to be so.*

> *"Well, there are lots of things but I think that will come with experience."* (WPS14, follow-up, quartile 3)

Some though did identify specific learning needs during their first placement. They included prescribing (both general and specific), acute management in specialist areas (cardiology, renal failure), more advanced knowledge in haematology in one specific case and anatomy (by someone working in surgery). Development of general practical skills was also mentioned by some.

> *"Acute [management], that has been highlighted to me as well"* (WPS9, follow-up, quartile 2)

> *"So whilst I say I need to learn more cardiology, I also need to know how much cardiology an F1 needs to know."* (WPS8, follow-up, quartile 2)

> *"Haematology. It is not really a big part of the job I am doing now. It was more specialist stuff, but I did realise I don't know much about it."* (WPS6, follow-up, quartile 3)

Looking ahead to the next placement also highlighted learning needs and knowledge gaps for some; although others felt their first placement had given them a good basis to move on from.

> *"I have gone from [particular area of medicine] which is a lot of clinics and a lot of lab work with interspersed ward work, and [the new placement] will all be ward based. I am sure I will be prepared after that block."* (WPS3, follow-up, quartile 1)

> *"I've not had any rotations in the new hospital. And not having any shadowing time as well, it will be quite interesting so see how this goes. But I'm sure it should be okay. It will be a brand new set of procedures."* (WPS4, follow-up, quartile 1)

> *"Yes, but it's [area of medicine]. So the first week has been a bit like back to square one but I'm getting there."* (WPS14, follow-up, quartile 3)

> *"The next job I do is in medicine at the same hospital, so it's basically a continuation."* (WPS11, follow-up, quartile 2)
>
> *"Having done medicine you can do anything."* (WPS2, follow-up, quartile 4)

16.2.3 Warwick Triangulation

This group of respondents commented on preparedness to ask for help rather than commenting on final year students and F1s identifying their own learning needs (see Asking for help section).

16.2.4 Summary of 'Identifying learning needs' for Warwick graduates

At the end of the medical school the graduates recognised a need to be proactive in addressing their future learning needs. At follow-up some F1s referred to recognising the importance of ongoing learning. Others were more specific and recognised individual learning needs: prescribing and pharmacology, acute management and the general management of certain diseases and specific procedures.

Perceptions from the triangulation data were that current graduates need to be proactive in meeting their learning needs. When in doubt they need to ask for help and initially a certain amount of 'over asking' is necessary to build confidence in the F1 working with the team and for the F1 to build up confidence in their own practice.

16.3 Glasgow Graduates

16.3.1 Expectations of Glasgow primary sample

As they anticipated starting practice, respondents recognised they would have knowledge gaps but felt that they were well prepared for finding out what they didn't know.

> *"If I get myself into a situation where I'm maybe stuck or I don't know something I know that I can walk away that day and find the information and teach myself. I know where to look for information if I need it and I know to use the resources"* (GPS3, first interview, quartile 2)

16.3.2 Experience of Glasgow primary sample

Reflecting on their first placement, some respondents listed particular areas where they could identify a need to improve: interpreting x-rays and ECGs, better knowledge of antibiotics and prescribing, better diagnostic skills, better clerking skills and improved skills in dealing with patients who have multi-system problems. Responses indicate that certainly some of the respondents were trying to take advantage of learning opportunities where they could.

> *"myself and one of my other colleagues have been trying to go into theatre, because I've been in surgery for the last four months, and we would have had to alternate that if the wards are quiet that one of us goes into theatre and tries to see things."* (GPS17, follow-up, quartile 1)

> *"…doctors and nursing staff, they're often a great source of information. How do I do this you know? How does this work, where is this kept? Nursing Assistants, pharmacists yeah, they're super as well. Physios…a physio showed me once you know what was involved in suctioning and that was really useful I just watched and learned from that. So yeah I'm quite happy to ask anyone and learn from anyone and I love learning …"* (GPS19, follow-up, quartile 1)

Another respondent mentioned that the need to be proactive had required some adjustment:

> *"that's when you realise that we do have to play a more active role, it's not just basically transcribing information and leaving it on piece of paper. I think that hit me quite hard that I do have to play a really active role…"* (GPS3, follow-up, quartile 2)

16.3.3 Glasgow Triangulation

In general the Glasgow FY1s were considered to be good at identifying and addressing their own learning needs

> *"They are now very good at searching for information about patient conditions and searching for information about literature searches and they are good at presenting at our meetings"* (G Undergraduate Tutor 9)

16.3.4 Summary of 'Identifying learning needs' for Glasgow graduates

The medical graduates were confident that when they identified a learning need they were well prepared to find the resources themselves to meet that need as this was how they learned as an undergraduate.

At follow-up the F1s acknowledged a readiness to learn by asking questions and observation. Some identified specific areas such as prescribing, diagnostic skills, interpretation of ECGs and x-rays, improvements to clerking patients and dealing with patients who are more complex i.e. having multi-system problems.

Perceptions from the triangulation were that in general the Glasgow F1s were good at identifying and addressing their own learning needs. Many clinicians commented on their ability to ask questions from the full range of team members.

16.4 Identifying learning needs': common themes and differences between sites

Generally there was a sense that new F1s were all prepared to take responsibility for their own continual professional development which would necessarily be more through clinical practice.

Commonly identified areas of need at all three medical schools were: the further development of prescribing skills, acute management and dealing with more complex patients and complex areas of communication.

Throughout the Glasgow transcript data clinicians commented on the Glasgow graduates' ability to ask questions. There is a suggestion that the PBL course has instilled a greater confidence in these graduates to be responsible for meeting their own learning needs via this assertive approach.

16.5 Commentary on theme from the research team Professors from each medical school

There was a sense that all medical schools had prepared the graduates for self directed learning. The data suggested medical graduates had a sense of responsibility for their own learning and this was taken forward to on the job learning.

Reading the report suggested that the Glasgow medical graduates were better information gatherers. There is evidence[1] that one of the benefits of attending a PBL curriculum is that graduates are better at finding things out. However, other medical graduates still succeed but may do it in a different way.

Reference

[1] Schmidt H, Vermeulen L, van der Molen HT, Long-term effects of problem-based learning: a comparison of competencies acquired by graduates of a problem-based and a conventional medical school. *Medical Education* 2006: 40: 562-567

Chapter 17. Improvements to training

Respondents were asked to identify ways in which they felt the undergraduate programme could be improved to better prepare them for F1. Most respondents at all sites were largely positive about their course, but some respondents did identify particular areas in which they could be improved. Comments were made in both the initial and follow-up interviews, and these are not separated here.

17.1 Newcastle Graduates

The Newcastle sample identified particular strengths in the course with regard to communication skills, and the basic clinical consultation – history taking and initial examination. Some also felt that the basic science components had provided them with a good grounding. Particular comments for improvement identified only one area which would benefit from a change in teaching: prescribing. Other suggestions for improvement focused on the development of situated workplace skills, rather than the knowledge base underlying practice.

Prescribing

Further improvements to training were suggested about pharmacology. Suggestions focused on both aspects identified in the earlier chapter – pharmacological science and prescribing practice.

> *"I think definitely we needed more practice or more teaching on prescribing and pharmacy"* (NPS136, follow-up, quartile 2)
>
> *"I think the only real thing is medication. I think we should, I think we could have probably had a little more pharmacology teaching"* (NPS143, follow-up, quartile 2)
>
> *"[It] would be helpful if they gave kind of examples, sort of prescribing more fluids, and then maybe just some scenarios about what to do if you're asked to change an antibiotic a patient is on because it's not available at the pharmacy ...there are a lot of things that are just about knowing the system and how to get hold of the right services if you need them but that's something you could maybe teach"* (NPS9, follow-up, quartile 4)
>
> *"Practicalities of writing drug prescriptions. There were certain things we had not covered like the kind of drug kardex that all patients have"* (NPS18, follow-up, quartile 4)
>
> *"I suppose my prescribing skills are not as good as they should be … but during my on call I have had to obviously prescribe medication … during university we have not had that much training on how to prescribe properly, which drugs to prescribe for which situations and the dosages and how often and I think we could have done with a bit more training in that"* (NPS106, follow-up, quartile 3)

Experiential learning

The key point made by respondents was that, whatever the knowledge base provided in the medical school setting, and despite feeling that their experience in this regard at Newcastle was at least adequate, there was a strong feeling that they would have benefited from gaining more experience in the latter part of the course, to develop the skills in practice that they would need when starting F1.

A most significant comment is that they would have liked to have received more time on the wards in their final year to observe, as this would have been beneficial to get a better understanding of the day-to-day running of the ward. It was also felt that this would have enabled them to understand the responsibility of the F1 and roles of team members better.

> *"…in the 4th year we spent about 3 months doing kind of just seminar based work rather than work on the wards, and I think a lot of people felt that wasn't, it would have been more useful to spend that time actually getting more clinical experience, erm because it sort of thought that there was a very large gap between 3rd and final year where you kind of forget a lot of information so rather than just consolidate you need to re-learn a lot of things and erm I tend to forget if I have just read about something I tend to forget, where if you actually see somebody on the ward I can see something in real life and I feel I have been taught. Maybe sort of time management as well, how people manage time to get through the work to have a balanced life"* (NPS9, first interview, quartile 4)

> *"The only way they could prepare you was to go back to what they used to do which was to allow you to do more than they do now...to act as an F1 in your final year for six months...that would be far more beneficial"* (NPS106, follow-up, quartile 3)

> *"I wish we'd had a bit longer on...just spending time on wards so that we could get used to just how things worked... it would have been useful to be placed on one ward for a long time just so that you could get to know the ins and outs of how things worked and things like that. And you never really did as a medical student"* (NPS18, follow-up, quartile 4)

Exposure to clinical specialties would also have helped them, and may have helped fill the gap in experience of on-call described earlier.

> *"...just more experience of more medical wards because I think mine was limited to care of the elderly...more time maybe on medical admissions units kind of things that. I think the opportunity to actually see other people assessing acutely ill patients and see their management competency is quite valuable..."* (NPS9, follow-up, quartile 4)

Another aspect which may have benefited from more instruction was that of completing paperwork and filling out forms, although whether this belonged in medical school or in induction was not clear.

> *"Probably more practice as well on writing out discharge summaries and death certificates, cremation forms"* (NPS136, follow-up, quartile 2)

> *"...in our induction...to have one of the acute care physicians who works on admissions talk to us and talk us through writing a discharge letter and documentation...would have been helpful"* (NPS65, follow-up, quartile 3)

The necessary development of clinical experience would have been aided for some respondents by improvements to the shadowing system, in terms of length, and in providing greater focus on outcomes within a more prescribed structure.

> *"I think the ratio of clinical to non-clinical is about right . . . I think, I guess it depends where you are, but I guess the clinical teaching could be a bit more structured."* (NPS66, first interview, quartile 3)

> *"I think it might have been more useful to have spent a couple of half days... start at eight with them [the F1s they are shadowing], do the ward round with them...I think it would have been more useful to have done that rather than have a couple of hours here and a couple of hours there...and in all honesty they were busy doing their stuff, we were probably more in their way...if we'd started the shift with them we could have been more useful...more productive for everybody"* (NPS8, follow-up, quartile 4)

> *"If it [shadowing] were really structured and actually be assigned an F1 and actually specific outcomes, rather than just wandering about between wards, like we kinda did"* (NPS66, follow-up, quartile 3)

> *"[If] your role was a little bit more well-defined [rather] than being a glorified stalker who can't sign any prescriptions, it might have been useful"* (NPS139, follow-up, quartile 2)

Some respondents suggested that the placement of exams at the end of the final year affected their development of clinical experience. Concentrating on passing finals was seen by some as a distraction from the process of developing skills to become a doctor. Some referred to knowledge of other medical schools where final exams are at the end of the fourth year, seeing this as being better for the development of clinical practice.

> *"The thing is it is difficult in medical school to get the balance between preparing to be an F1 and then passing your exams...and somehow striking the balance and you think it will be the same thing but it's not"* (NPS194, follow-up, quartile 1)

> *"You should do your finals not in the last month but it should be done a bit like Manchester does at the end of your fourth year, or half way through final year...basically practising to be an F1 completely without any concerns about study"* (NPS106, follow-up, quartile 3)

> *" [your last months] revising for finals, as opposed to getting used to what it'd be like on the job, if you see what I mean"* (NPS66, follow-up, quartile 3)

> *"I was talking to one of my friends from Liverpool Uni and they do their system quite differently and have finals at the end of fourth year ...I thought that seemed like quite a good idea because a lot of final year everyone's worried about passing finals basically and so you just want to get your head in a text book ... whereas if finals were out of the way then you would be worried about starting work rather than your finals, so you'd be wanting to get more practical experience and things..."* (NPS93, follow-up, quartile 3)

> *"...I think with some of the universities having finals in fourth year and then having a year of shadowing afterwards, it's sort of, you know, like shadowing in terms of rotational shadowing. I think that's really beneficial"* (NPS26, follow-up, quartile 4)

17.1.1 Newcastle Triangulation

The importance of undergraduates' developing expertise in real workplace settings was reinforced by the triangulation sample. Respondents felt that students need a clearer picture of a doctor's working life and what makes a good doctor in practice. Suggestions to help improve training in this area included: more ward-based exposure in medical school and a longer shadowing period to gain greater understanding of the day-to-day life of a doctor, to follow patients through for a longer time and to be integrated more into a team with a contributory role (i.e. "not passively observing…able to play a role" (Undergraduate Tutor 2).

> *"…they don't really quite seem to fully understand what a doctor does when they start work…if they had the opportunity for a longer shadowing period …really got to see what the day-to-day life of a doctor is. [It's good] that they get to experience lots of things but they never feel like they actually belong to anywhere for long enough to perhaps fully understand it…"* (N Undergraduate Tutor 10)

> *"From third year onwards more time on the wards learning to apply the skills of F1, working with existing F1 and ward sisters in final year almost doing the job"* (N Undergraduate Tutor 7)

> *"I think perhaps in fifth year they might have a better opportunity to spend more time on the wards, not just being taught or being educationally active, …more equipped on the day-to-day ward work"* (N Key Manager 7)

> *"More ward work ... gets you in a situation where you have a little bit more know-how ... getting them to do more shadowing, not necessarily shadowing, but more supervised sharing – shadowing means just watching what somebody does, what I mean is actually taking part in but not being solely responsible"* (N Educational Supervisor 19)

Further suggestions made by respondents mostly referred to this experiential dimension: greater experience of acute medicine, exposure to dealing with medical and surgical

emergencies and working at nights. Some referred to more knowledge-based areas though, such as more emphasis on applied anatomy and physiology.

There is also the suggestion that the increasing focus on achieving specific competencies to progress through training should not be at the expense of maintaining a holistic focus on the work of a doctor.

> *"…actually being a doctor and working for real is very different from the sort of skills that make you academically…there is a lot more to being a doctor than the actual knowledge bit of it: teamwork, organisational skills, the ability to sort of organise and prioritise things. That sort of thing makes good doctors and communication skills"* (N Undergraduate Tutor 13)

17.1.2 Summary of 'Improvements to Training' for Newcastle graduates

The Newcastle graduates identified particular strengths in the course. These included: communication skills, history taking and initial examination and some of the basic science components.

Suggestions on areas that would benefit from improvement included: prescribing and more experiential learning in the wards in the final year of study. Further ward experience would have facilitated greater understanding of the role of the F1 and the work that they undertake, of particular concern were: on call and dealing with paperwork. Other suggestions included a longer and more structured shadowing period and moving the finals exam to the end of fourth year to enable students to focus on preparation for practice in the fifth year.

Perceptions from the triangulation data were to: increase the amount of time spent on wards, increase the shadowing period and provide more hands-on opportunities and less observation and to become more integrated into the team with a contributory role and again more supervised practice and less observation. There were also suggestions to increase experience of acute medicine and emergency care and working at nights.

There were also some suggestions to gain more experience in applied anatomy and physiology.

17.2 Warwick Graduates

For the primary sample, suggestions for improvements to training are discussed through merging data from initial and follow-up interviews. There were very positive comments on aspects of the course, including good teaching in many areas. Some positive comments contain an implicit perception of the limits of undergraduate preparation for practice.

> *"I think things like clinical skills and diagnostic skills are actually taught quite well."* (WPS4, first interview, quartile 1)

> *"Again when it comes to team work and communication skills that is taught very well at Warwick."* (WPS17, first interview, quartile 3)

> *"I think having gone through it and having passed now is I may see it through rose tinted spectacles but I think the course overall is actually well organised and well thought out."* (WPS17, first interview, quartile 3)

> *"I personally can't see what more the medical school can do in order to prepare us more given these four years."* (WPS19, first interview, quartile 4)

> *"I don't know whether there is ever going to be a medical degree that will ever properly be able to address that transition from being a medical student to being a doctor. I think there is always going to be a shock."* (WPS10, first interview, quartile 2)

One respondent, however, felt that the course requires an overall reorganisation to treat it as a vocational course.

> *"I think medicine is very stuck in the past in a lot of respects. ...The whole thing needs to be an integrated approach to teaching, more vocationally driven...I would feel so much better at this point if I knew that actually I had some structured mentoring that was specifically geared towards integrating my learning into a vocational practical way of thinking."* (WPS16, first interview, quartile 3)

Patient contact and clinical practice were identified as key positive aspects of the programme, from early introduction to patients and the practical sides of working as a doctor in a real hospital environment, through to shadowing pre-F1.

> *"They introduced us to patients very early on, which is important because you know straight off why you are doing a course … and you have two kinds of exposure. You had hospital exposure right from the beginning and you had that one afternoon a week and that was good. It was very how it should have been, very structured and also very – they held your hand a lot, which is what you need at that point."* (WPS10, first interview, quartile 2)

> *"I have had some very good attachments and Consultants which actually treated us like mini doctors if you like. They would give us a bay and we would be the F1 in that bay and look after the patients and also had some on call and some night on calls and things"* (WPS21, first interview, quartile 4)

> *"I think the shadowing was the key. If we hadn't done the work shadowing, it would have been difficult. I suppose if I had work shadowed the job I was going into, that would have been better."* (WPS6, follow-up, quartile 3)

Some felt that there was too much of a shift away from teaching though, and that too early a reliance on self-direction could be detrimental.

> *"The pre-clinical I thought was fairly good actually ...but once you're in the clinical I don't feel you really get any more teaching, its kind of you're left to fend for yourself a bit that's in my general feeling, and I know that's how a lot of [us feel]."* (WPS9, first interview, quartile 2)

> *"It really is a kind of a lottery. I have some wonderful blocks where I've learnt so much, I've had excellent teachers and lots of support, but I've also had blocks where*

> *the consultant's been away on holiday for six weeks, and the house officer's been off ill, and you're left floating and not knowing what to do.."* (WPS15, first interview, quartile 3)

> *"The main problem of course is that people who tend to shy away from doing practical procedures can usually get away with not doing much. "* (WPS22, first interview, quartile 4)

Conversely others felt that *more* time with patients was the main requirement, indicating that this was something that the level of actual contact and quality of learning varied between placements and the support of clinical undergraduate tutors.

> *"Maybe put more emphasis on when you are say a final year medical student...on doing more things on the ward with the house officers. So, taking on the role of the house officer a bit more. We did that a little bit but perhaps be more encouraged to do that."* (WPS1, follow-up, quartile 1)

> *"Maybe one should probably do a ward cover on call with an F1 doctor. That would be a good idea."* (WPS10, follow-up, quartile 2)

> *"I should have spent more time particularly on call and following the house officer around. I think particularly the consultant I had liked to support and give credit to them which was great and I learnt a lot that way, but I never spent a lot of time on the wards doing what the house officers did, which other people with different teams of students had more of a chance to do."* (WPS9, follow-up, quartile 2)

> *"I think all the consultants had very clear ideas of what they were supposed to be doing with their final year medical students. There was teaching every week, organised teaching where the registrars would take groups of final year medical students and teach examinations. I felt the most prepared in the orthopaedics when it came to the finals examinations really"* (WPS1, first interview, quartile 1)

One person suggested that changing clinical partner would be advantageous, although this may be problematic for the organisation of rotations.

> *"I had someone I got on with the whole way through, but then I think he was more dominant. I think maybe they should change it where you rotate to work with different people, rather than with the same person for about two and half years."* (WPS24, first interview, quartile 4)

Some areas of teaching were identified as weak, however, particularly prescribing (both pharmacology and practice), and anatomy.

> *"I don't think that pharmacology at Warwick was particularly well taught [and] ...it would be more beneficial to bring it into the course earlier on. We seem to spend a lot of time learning the mental side of things, the history of the patient and what's wrong with them but quite often the management of seemed to lag behind"* (WPS11, first interview, quartile 2)

> *"What it came down to is we had a list of drugs which was either incomplete or wrong that we were told to go away and learn. So we did, and learning drugs when you are not prescribing them, it's difficult because you have to learn a lot about each one."* (WPS16, first interview, quartile 3)

Prescribing was seen by some to suffer from a decontextualising of teaching, separating pharmacology from its clinical application.

> *"We had clinical pharmacology as a block on its own. It would have been better to have cardiology which we obviously had, with the pharmacology based stuff with that module because it would have related to cardiology. Hypertensive drugs with cardiology rather than a module on its own focusing on all drugs but not really linking it back. Well they did try to link it back but it would have been better to have it all together in that module."* (WPS10, first interview, quartile 2)

> *"I've now got the form that says, well, providing you're not loading the patient with warfarin, this is how you actually dose warfarin. I think if I'd had that right at the start of the rotation, and maybe even as part of my medical degree, it would be possibly one of the most useful pieces of paper I've been given."* (WPS8, follow-up, quartile 2)

> *"A more applicable pharmacology training, something that would have more use for day-to-day prescribing [would have been useful]"* (WPS18, follow-up, quartile 1)

> *"We've had quite a few sessions where they've had the drug kardexes out and given us examples of a clinical situation and you have to try and put down what drugs you would expect them to be on and then they've come round and checked it so that's been quite good."* (WPS13, first interview, quartile 3)

Comments on anatomy suggested it was possibly too condensed to adequately cover a large area, and as a consequence was not as comprehensive as it should have been (e.g. head and neck anatomy was purely an optional module). One person suggested using a labelled model rather than dissection, as final year medical students' dissection skills were under-developed and it was notoriously difficult to get a good view with around ten other people. There was also a feeling from some that anatomy teaching would also benefit from a more contextualised approach.

> *"I think it's a difficult subject to actually be taught in a lecture-based format and I definitely found the most useful thing was going over the dissection and have the demonstrators actually show it to you...I think a lot of the consultants found it quite amusing that [head and neck] was an optional extra to learn."* (WPS18, first interview, quartile 1)

> *"The way it was put across didn't suit the way I learn at all. I'm really bad at just learning names and lists. I'm a process learner. .. I can learn anatomy if I've got a clinical scenario behind it."* (WPS16, first interview, quartile 3)

Another main area of concern in the curriculum was the scope and positioning of social sciences. Some respondents felt that some of the focus on theoretical concepts in the course could have been reduced, with more time for clinical modules which were felt to be more important.

> *"Less sociology or less theoretically based sociology where there is a lot of theories."* (WPS10, first interview, quartile 2)

> *"Some of the other more clinical modules seem to be skimped on to allow time. It is an important thing we do."* (WPS2, first interview, quartile 1)

> *"I read back through my file and got really cross by the sociology side of things. It's very important to know why someone comes to the doctor [etc., but]...it's not important to know the theories behind weird and wonderful this, that and the others. We learnt all sorts of things like health belief models and I can't remember all of it now because it's not something that is going to make me a better doctor, I don't think."* (WPS10, first interview, quartile 2)

> *"I think they did quite a lot of social things with us...but I think people on a graduate course, I think a lot of us have personally seen quite a lot of that already really and we could have spent more time maybe learning pharmacology or something like that"* (WPS14, first interview, quartile 3)

Respondents also felt there were weaknesses or gaps in teaching for the reality of clinical practice on acute conditions and management, and that simulation was not always the best way to practise.

> *"I don't know, maybe more structured clinical teaching as in how to manage a patient. You see a patient, how do you actually [do] acute management of a patient really? We have done a lot of chronic disease but not a lot of acute management."* (WPS21, follow-up, quartile 4)

> *"I found that actually I was very prepared to take a history and come up with an immediate management ...whereas what you end up dealing with are people who are already clerked in and already under management but their blood pressure has dropped, or they have got a temperature or something"* (WPS3, follow-up, quartile 1)

> *"[Advanced Clinical Practice] was not helpful to me at all. It was a lot of plastic arms and dummies ... fine for learning a technique but it is so far removed from actually doing it for real. You don't have someone shouting ouch and trying to pull their arm away from you if it is a plastic dummy so it is a completely different thing"* (WPS20, first interview, quartile 4)

Some F1s identified weaknesses in assessment, and expressed a desire to see more, earlier and more relevant assessment, especially on the more common aspects, as well as higher pass marks.

> *"I know we're assessed in the additional clinical practice and maybe that's something that would be useful earlier on and you have to achieve so many practical objectives in each block and get them signed off by someone who would help structure it. Not just for the students but it's quite nice if the people teaching you know that you have to achieve that because then you actually get the opportunity more than if they don't know anything about it."* (WPS4, follow-up, quartile 1)

> *"The priorities weren't right. And as for the final assessment of the pharmacology exam, I believe the pass mark was 6/15 in the end which you all needed to score 50% on a question to pass. So I think you had a pass mark of under 20% which was really not very good. You wouldn't want to think that your House Officer would get the drug right one in five times. But I think the assessment missed the point. It focused a lot on malaria drugs. You are not going to be seeing malaria drugs very often as an F1 and I think had it been a far more structured exam but focused to a much greater extent on the 20 or 30 core drugs that House Officers prescribe and use."* (WPS20, follow-up, quartile 4)

17.2.1 Warwick Triangulation

There was a strong general message from the triangulation sample that more time was needed on practical experiences in a clinical setting rather than there being gaps in teaching.

> *"Although there are tutorial groups and seminar groups they tend to be focussed around table exercises rather than direct work around patient and understanding problems presenting what's going on with a real patient directly at the bedside... I think web-based or students could hold seminars themselves to discuss what they have done and their experience of that."* (W Key Manager 4)

> *"They need to spend more time on the wards and seeing patients before they graduate but then we have the problem of ethical issues and the fact that training has really changed here."* (W Educational Supervisor 10)

> *"They need more time with the patients. That's the key here isn't it? When I was training we spent a lot more time with patients before we graduated but then the training now is shortened so it may not be possible to fit it all into the timetable."* (W Educational Supervisor 2)

An increase in focus on what is covered in clinical placements was also mentioned. This may relate to the limited exposure to some specialties reducing the opportunity to observe and learn some procedures.

> *"I honestly can't think where you can do anything about being around and seeing the seniors ...Maybe they should have actually specific tasks to follow. The way we teach our medical students, they have to do ten different things. Maybe that's what they should do instead, examine 2 abdomens, 3 chests, 4 legs and that should be in their portfolios in more detail."* (W Undergraduate Tutor 8)

There was some suggestion that changes to the undergraduate system meant that this experience was not gained to the extent it was by earlier generations.

> *"perhaps lack the experience that used to be part of the medical school experience. In the past it wasn't so much learning or teaching, you were virtually doing the job in some way and you were very much acting houseman if you could and did a lot more practical things, locum type things. So the very best final year medical students then had almost been practising for a year or so"* (W Undergraduate Tutor 3)

> *"I think there is too sharp a cut off from student days ...in the past they have started, they have hit the ground, I wouldn't saying running, at least walking fairly quickly, and now we are having to do this in the first month or two to bring them up to speed."* (W Undergraduate Tutor 4)

> *"I think what they should be made to do is go on call...I think if they were around more on call they would learn more, certainly dealing with acute situations."* (W Educational Supervisor 3)

A few respondents did mention specific areas where teaching could be improved though, including prescribing, paperwork and readiness for acute management.

> *"Prescribing of course and writing up cases in general practice, that would be really good for them and that's something we don't make them do at the moment"* (W Undergraduate Tutor 7)

> *"When we get referral letters from F1s in hospitals they don't give the right information. I really need to know what date they were admitted and discharged and it doesn't say. If it's typed I assume that it's been seen by someone else but even then it doesn't contain the information I need so that's one area where the training could help I think."* (W Undergraduate Tutor 6)

> *"Thinking about the emergency stuff, what you could do is almost have an OSCE of different emergency scenarios. Have a couple of weeks of emergency medicine, well not just medicine, you know surgery, paeds, obs and gynae, and you could have a shocked patient and bleeding patient, an allergic reaction, a pulmonary oedema, acute MI, a septic abdomen...and you could see, can they actually manage an emergency situation?"* (W Undergraduate Tutor 5)

One respondent in the professional group thought that the shadowing process was not well co-ordinated between medical schools and trusts.

> *"The process of setting up their shadowing, it doesn't seem a very co-ordinated thing really; they ring up on a slightly ad hoc basis and ask if it is possible for me to shadow...as far as I am aware the medical school doesn't seem to be getting in contact with the trust where their F1s are going to be working. I don't think it is organised on a more formal basis. And I have had a number of F1s coming from outside saying is it possible to come and do shadowing with the firm I am going to be working with, otherwise I will do it locally. That really needs to be formally organised and they need to have accommodation sorted out and it needs to be structured."* (W Key Manager 5)

17.2.2 Summary of 'Improvements to Training' for Warwick graduates

The Warwick graduates identified particular strengths in the course. These included: communication skills and clinical and diagnostic skills, and the opportunity to work with patients and on wards early on was appreciated and welcomed.

Suggestions for improvement included: more time engaged with the work of the F1 and less time observing, experience on call, more teaching on prescribing linked to each speciality and more applied exposure to prescribing. Other suggestions were more exposure to acute management of patients, more exposure to real patients and less dependence on plastic mannequins.

The main emphasis from the triangulation data was that clinicians wanted to see more time spent gaining more experience in clinical settings; to spend more time with patients and learn more specific tasks.

17.3 Glasgow Graduates

The Glasgow undergraduate programme was praised in some specific respects, particularly in preparing students for communicating with patients. Some respondents noted that the PBL approach instils a sense of self-sufficiency and independence in graduates and equips them with the tools to 'figure things out'. This preparation was contrasted positively to graduates of other medical schools.

> *"We get exposed to [x and y other medical schools in Scotland] students ...if they don't know something it's like 'well we didn't get that lecture or we didn't get this, and nobody told us that so it must be wrong', whereas we are more like 'oh we'll go and have a wee look, we'll see what it says' ...it's a gradual build up of knowledge whereas I think people coming from more traditional courses are exasperated because they think that they should know it all whereas we know we don't ...we have been trained to go and find it out"* (GPS12, first interview, quartile 2)

While some individual concerns were raised about teaching of specific areas: basic sciences, pharmacy, acute medicine, and one desired more formal teaching and less PBL, there were few suggestions for substantial change. Suggested improvements included changes to the advisory system, more acute care days and lists of clinical skills and procedures.

> *"I think maybe we should have some sort of list that we have to things maybe, you have to do 10, 15 ECGs and get them ticked off and it's a hassle but it means, at least you do them, it means you have to do them."* (GPS9, first interview, quartile 4)

Some respondents felt that it would be preferable to sit finals earlier at the end of the fourth year, with explicit comparison to two other Scottish Medical Schools. The final year could then be used as an extended shadowing period which would allow time to get used to the job, rather than just studying right up until the end of the course.

There were some comments about the shadowing period, which is a compulsory element of the undergraduate programme in Glasgow. Some suggested a longer shadowing period would be useful, although there was a concern that people may not attend a longer shadowing period. Others felt it should immediately precede starting F1 in July (rather than being in June) so that they do not just forget how to use the hospital computer systems etc.

The content of shadowing may also be usefully expanded to include experience during shadowing of weekends or nights, to see more directly the acute management juniors may have to undertake.

Two respondents identified difficulties in the system, reporting that they did not know which ward they would be working on until the first day of work and they had not done their shadowing on that ward.

17.3.1 Glasgow Triangulation

Almost all of the respondents gave opinions about areas of undergraduate training that could be improved. However there was a clear division between those who advocated more basic sciences and a greater proportion who wanted more hands on experience.

> *"In terms of the training or education I think they need to have more basic stuff, they need more anatomy and physiology, that sort of stuff, not back to what we had before because that was too much. We certainly need more of that"* (G Undergraduate Tutor 4)

> *"I think definitely more exposure to patients acutely as undergraduates, so I think a lot of them no longer spend time seeing patients, you know, in the evenings and out of hours, so they're not used to seeing acute presentations of illness so they're then expected to deal with it, they're inexperienced in that, so I think the fact that a lot of the teaching has been taken to formalise sessions and so on in working hours has*

> *detracted a little bit from that and they should be encouraged to when they're on attachment to see acute presentations, so just to be there at the front door"* (G Foundation Year Educational Supervisor 7)

There was a similar split when discussing prescribing which was suggested by a substantial minority as needing improvement i.e. a few suggested more basic pharmacology but the majority recommended more practical sessions.

> *"I think if anything if I was going to pinpoint anything it might be to do with pharmacology"* (G Foundation year Educational Supervisor 5)

> *"I think in terms of drugs, it's what happens if I do, almost in a clinical scenario, you know, if I do this to Jeanie, what happens to Jeanie, crumbs, what do I do next? Because a lot of the time it's the, they do kind of know what they are supposed to do but they have never actually put themselves in the position of doing it so they don't do anything"* (G Key Manager 4)

Several respondents wanted an extended period of shadowing to ensure that students were more prepared for their role as an FY1 doctor.

> *"I think an attachment as a final year medical student is two months of work shadowing that sort of thing where they actually get involved with the ward during that time. Encourage them to learn the skills of being a house officer in terms of organising the wards but also maybe encourage them to go and see patients and make some assessments"* (G Undergraduate Tutor 9)

There was a very strong theme that problems were mainly related to training after basic medical education and not only to basic medical training itself.

> *"My main concern is... I am not sure that the FY1 is getting that experience of clerking patients. But that's actually a concern in the job. In terms of their preparation for the job, no I, I think that as I say in terms of communication, in terms of the kind of practical aspects, skills, talking to patients, clinical examining, clinically examining patients I think the preparation is fine"* (G Foundation year Educational Supervisor 5)

> *"...the whole concept of a programme where they change units so quickly, particularly when they are working a shift pattern, because they don't really get continuity in working with any particular, you know they are constantly changing, you know if they are on nights they may never see the senior people ...I think that disenfranchises them, they don't have a whole unit, they have different colleagues all the time, I think again that is a reflection of the sickness absence"* (G Key Manager 5)

Changes in the service and service pressures were also felt to be impacting on the ability of senior doctors to train their junior colleagues.

> *"I feel I have less time to do clinical bedside teaching than I ever had before. I remember being a trainee at the [Hospital] and we had a lot of good clinical bedside teaching and a lot of time dedicated to it. I feel now that certainly I don't feel that I am doing them a service the way I was taught. I think we have less time to dedicate to teaching. By the time we get to the end of the block and discover they can't really examine the chest that well. I certainly feel I have less time to dedicate to them. I don't know how we get round that whether we try to do it another way outwith bedside teaching. We could get them to teach one another. I think that's the big area."* (G Portfolio assessor 3)

The final theme that was strongly represented by respondents was that trainees were variable in their preparedness.

> *"So in every group we get about eight or nine at a time and there are always one or two who are completely hopeless...the good ones are very good, the good ones coming through are excellent …some of them that you would not wish any of your family to be treated by them."* (G Undergraduate Tutor 5)

17.3.2 Summary of 'Improvements to Training' for Glasgow graduates

The Glasgow graduates identified particular strengths in the course these included: communication skills and learning how to find their own answers to questions following the skills learned from the PBL course.

Suggestions for improvements included: improvements to the teaching on basic sciences, pharmacy, acute medicine and specific clinical skills and procedures. Other suggestions were to have more hands on experience and to extend the shadowing period. Others suggested having finals in the fourth year to enable final year students to focus on learning the skills for F1.

Perceptions from the triangulation data were split between advocating more basic sciences and gaining more hands on experience. Other suggestions were about improvement to pharmacology teaching and extending the shadowing period.

17.4 'Improvements to Training': common themes and differences between sites

All medical graduates from each of the medical schools agreed that communication skills were particularly well taught.

There were common areas that all graduates and clinicians agreed would be areas of improvement. These were: having more experience on the wards – to help prepare graduates for all the F1 tasks, more targeted teaching for prescribing and improvements to shadowing.

Some schools went into more detail about changes they wanted to see in their own programme and others provided specific improvements that they wanted to see but which were not general to the other schools.

Chapter 18. Conclusions from the qualitative data

The preceding chapters present data from interviews with the primary sample of new graduates before and after their first F1 placements, and with a triangulating sample of senior clinicians with supervisory and managerial responsibility for undergraduates and F1s.

Findings may be summarised as follows:

- Transition to 'being a doctor' is looked forward to as fulfilling years of training, and finally having a proper role to play in a clinical team, although this is balanced by apprehension about taking on responsibility, having to put learning into practice in stressful environments, and the effect work will have on lifestyle. There was some variation in the understanding of the F1 role and its expected limitations.
- Prescribing is a key area of under-preparedness. Undergraduate teaching does not prepare new graduates for prescribing as a skilled task involving applied clinical pharmacology. There is a perceived lack of focus on common prescribing tasks.
- Other clinical skills are sufficiently practiced as undergraduates, but not in contexts which sufficiently mimic the real clinical environment, with multiple demands on time, the need to prioritise, and the responsibility of dealing with acute cases.
- Knowledge of anatomy was perceived as a potential weakness by some new graduates at all sites, but this was not borne out in their initial experience of F1, nor seen as a weakness by the triangulating sample. While there are acknowledged gaps, these do not generally present problems in F1, although assisting in theatre would require more.
- Complex communication tasks were also an area of under-preparedness. These included breaking bad news to patients (even in a limited way such as telling a patient they have to stay in hospital), and dealing with distressed or angry relatives.
- Knowledge of non-clinical areas such as legal and ethical issues, and the operation of the NHS, was lacking.
- There is a feeling that undergraduate teaching can only prepare students to a particular level, and that much learning can only be done in the context of actually being a doctor.

The dominant conclusion from these findings is that preparedness for practice is strongly related to exposure to actual clinical practice, with real patients, among real ward teams. The variation in hospital procedures and protocols in areas such as prescribing, requesting tests or scans, and the informal cultural aspects of inter-team communication were also highlighted as issues making this transfer problematic.

There are no indications of a systematic variation in the preparedness or concerns of the respondents with their MTAS quartile.

18.1 Substantive theory

In terms of the grounded theory approach used in the analysis, the core category to emerge from the data is exposure to clinical practice. Other areas of underpreparedness are identified as relating to the prior experience of the F1 role. Other themes are consequences of this in practice (i.e. specific areas of underpreparedness), or antecedents (in the organisational facilitation of practice, or the personal characteristics of the trainee).

The theory generated from analysis is that preparedness for work is related to exposure to clinical practice. The greater the exposure to clinical practice prior to starting work as an F1 the greater the level of preparedness.

Chapter 19. Discussion

This study has attempted to answer the primary research question: *Are medical graduates fully prepared for medical practice?*

To answer this question data was collected from and about graduates of three diverse medical schools:

- Newcastle, with a systems-based, integrated curriculum,
- Warwick, a graduate entry school and
- Glasgow, with a wholly problem-based learning (PBL) school.

Qualitative data was collected from over 200 interviews with medical graduates before and after starting work, their undergraduate tutors, educational supervisors and key managers, and by focus groups with portfolio assessors. In addition quantitative data was collected by questionnaires to the entire graduating cohorts prior to starting work, and to the clinical teams they work with. Secondary data on new graduates' progress in F1 comprising a review of the assessments completed in the F1s' portfolios and a safe prescribing assessment completed by Newcastle and Warwick graduates.

The answer to the research question is not simple: medical graduates are prepared for some aspects of practice but not all.

19.1 Transition

The change from medical student to F1 doctor is a significant one. It is experienced as a transition involving a substantial 'step up' in responsibility. Skills and procedures that were practised and rehearsed mainly with simulators, mannequins and actors are now carried out 'for real', under time pressure with the demands of many patients. This transition involved a steep learning curve for many new F1s in adapting to the demands of practice, as well as the personal impact of taking on the professional identity of 'being a doctor'. While experienced positively in the feeling of having a role in a clinical team, and putting years of training into practice, there were downsides in the pressure of responsibility, and changes to lifestyle.

Various factors such as shadowing, staff support and induction helped the transition, but if these were not in place or not well managed, they could equally make the transition more challenging and difficult. Readiness for the transition could be variable, and factors were identified that helped and hindered. These could be external, in the form of opportunities for clinical experience that arose during medical school (the arrangement of clinical placements in different specialties, and the teams worked with) and during induction (e.g. ALS courses), or internal in the form of personality characteristics (whether the doctor was proactive in identifying learning opportunities and seeking practical experience), and their preferred learning style. All these factors contributed to preparedness for practice.

19.2 Preparation for communication skills

Communication is an area for which new graduates felt prepared, reflected both in the cohort questionnaire and in the face-to-face interviews. This was further supported by follow-up interviews after the first placement and the triangulating interviews with senior clinicians. Previous research in other medical schools has also reported communication skills as an area of preparedness[1, 2, 3, 4, 5].

However, there was some evidence both from the primary sample and from the triangulation interviews that the 'higher order' skills, such as breaking bad news, needed to be experienced in the workplace to be further developed, a finding that has also been reported elsewhere[2].

19.3 Lack of preparation for skills that need to be learned 'on the job'

There was a limitation to the extent to which aspects of work learned or rehearsed in a classroom or setting could be transferred to the clinical setting. These included topics identified under the qualitative theme 'Managing the duties of a doctor' such as: working nights and being on call, dealing with paperwork and hospital polices, managing acutely ill patients and learning how to prioritise and manage time. The increase in administrative work and the need to learn how to prioritise workload has also been reported elsewhere[6] as has the value of a shadowing experience [3, 4]. Other themes which are reported separately but fall into this category of needing to be learnt on the job are: prescribing and learning about the F1 role.

The need to have more on the job experience does not come across clearly in either the qualitative or quantitative data sets collected from the graduates before starting work, although some did mention that clinical placements had helped them. There was a sense from some that they could not anticipate their level of preparedness until they had actually started work.

The evidence for a need for more practice came at follow-up after the graduates had been working for 4 months, and from interview and questionnaire data from the people working with them. F1s talked about a 'big step up' and seem surprised at the complexity of some patients' problems, which can be multi-factorial. Senior clinicians in turn reflected on clinical education 'in their day', some noting improvements, some noting retrograde steps, some noting elements of both in the changes in medical education. Some clinicians took the view that medical school training has become too sanitised and does not sufficiently reflect the complex, busy and often messy side of real practice. Generally they agreed that if F1s arrived on Day One with more experience of their job it would be to the benefit of all.

The data indicates a need to 'do the job' before starting work as an F1. Some F1s reported wishing they had had a longer shadowing period, or an extended 'exam-free' period before starting work to focus on developing just those skills that are needed immediately when work commences. They worried about clinical prioritisation – knowing which patient to see first when called to see several ill patients, and being faced with being on-call or night duties so early on in their job. Being relatively 'out of their depth' was also remarked upon by the clinicians, many of whom commented on the need for more ward experience and more 'hands-on' practice before the F1s started in order to be better prepared for what lay ahead. Several senior clinicians qualified the need for more 'on the job' experience, stating there was a need for more supervised practice and increased engagement with the team rather than more observation.

Some clinicians and F1s reported that opportunities to learn as medical students were limited by their having no formal role in the team and being effectively outsiders looking in. Suggestions about how to improve future training included more exposure to clinical practice with more time on wards and a longer shadowing period were seen as important, but there were also comments about how this time needs to be more structured and more participative to be effective. The medical student needed to be brought into the team, to have a role and to participate in supervised practice to really learn about the duties of the F1 doctor.

This idea of moving gradually from peripheral participation to more central involvement is reflected in the educational theories of 'situated learning'[7, 8, 9]. Through co-participation in the work environment and engagement with the 'daily round', learners have the opportunity not only to extend their knowledge but also to learn about procedures, processes and interactions that are contextualised in the workplace situation.

Theories of situated learning refer to learning in the workplace as a process of enculturation of individuals into real practices through authentic activity and appropriate supported participation, that is, through 'legitimate peripheral participation'[8]. Learners are allowed to

participate 'legitimately', i.e. their participation matters to the community's successful performance of its work. Their learning is 'peripheral' in the sense that they are novices who necessarily have to initially learn at the periphery, but who move more to the 'centre' as they become more competent and skilled, with this eventually resulting in full participation.

19.4 The F1 role

Knowledge of the F1 role, their area of responsibility and how they worked within the team were areas where generally all the data indicated some level of preparedness. At the time of the follow-up interview most F1s felt clearer about this. However, there were reports of not being entirely confident where the boundary was between the F1 role and that of other members of the team. The data from the qualitative interviews with all the clinicians indicated that there was room for improvement, suggesting that more on the job experience would have provided better clarity of role. Again, this is something that would be expected to improve following more exposure to clinical practice. The need to have contact with other doctors to develop professional identity and the lack of clarity of role has recently been highlighted as a general issue within the medical profession[10, 11].

19.5 Clinical and practical skills

While some F1 tasks are unavoidably situated in the workplace, some clinical and practical skills can be removed from the clinical setting and practised in the classroom using simulators and mannequins. Bringing the learned skill back into the clinical setting was described by some as a steep learning curve since many graduates had gained most of their competence on mannequins and needed to transfer that skill to real patients. The majority did seem to make this adjustment reasonably well, a finding also reported elsewhere[3, 4] but there were some who found themselves with less support than they would have liked. This was described by some as 'sink or swim'. Other studies have also reported on the steep learning curve for clinical and practical skills[12].

19.6 Portfolio data

Portfolio data was reviewed from each Foundation School to identify which, if any, portfolio assessments had been completed by the end of the first placement. F1s were expected to complete assessments first for the competencies for which they felt most prepared. The portfolio data for Newcastle and Warwick indicates that most F1s completed three DOPS at Newcastle and two at Warwick (and similar numbers for the other assessments). Access to comparable data for Glasgow was not available.

The assessment data indicates that over 60% of all DOPS or WPA assessments were completed in six main areas: venepuncture, cannulation, arterial blood sampling, catheterisation, naso gastric tube insertion and blood culture (peripheral). With the exception of the latter, most of these procedures were referred to by F1s at interview in the context of preparedness. As these procedures were assessed first this indicates that these are the common areas of preparedness for practical procedures. There was some variation in the data from Glasgow as the assessments are not completely comparable but the picture is broadly the same.

Most of the F1s and many of the educational supervisors also referred to practical difficulties in finding members of the team who had time to observe the procedures and complete the necessary assessment forms, making completion of the assessments more difficult. This finding has also been reported elsewhere[13].

19.7 Prescribing

The area of least preparedness was prescribing. It was singularly the greatest area of weakness, reflected in all the relevant data collected at each of the medical schools (although

it is not explicitly in the portfolio assessments at present). The evidence for this comes from perceptions of the graduates before and after starting work, from the clinical team interviews and questionnaires included in the triangulation data and from the pharmacists' interviews and questionnaires. This was further confirmed in the results of the prescribing assessment undertaken by both Newcastle and Warwick F1s and similar findings have been reported elsewhere [12, 14].

Prescribing is treated as a distinct theme because of its particular importance in clinical practice, and because it was identified as a particular area of weakness. However it is also a skill that is acquired and developed experientially in practice like the other clinical skills discussed. Many of the graduates reported that prescribing was something they could not really 'get to grips' with as a classroom subject, but when in practice on the wards it became relevant and important, suggesting it is best learnt in the clinical setting.

The act of prescribing is a skill of a high order of complexity. It comes at the end of a series of stages in the clinical process including clinical reasoning and investigation. It is a skill that needs to be applied to be fully learned. It is of note that the majority of mistakes reported in the follow-up interviews were prescribing errors, although most of these were of minor significance. It is concluded that steps should be taken to improve preparedness for prescribing. It is possible that students could gain more experience of prescribing during the final undergraduate year by for example writing up dummy prescriptions and drug charts. Previous research in other medical schools has also reported prescribing as a weak area[1].

19.8 MTAS scores

To relate preparedness to academic performance in medical school, the primary sample was selected by stratifying students on the basis of the quartiles of MTAS academic score. The quartile was then monitored during the qualitative analysis to determine if there were any particular patterns in the data that were related to the MTAS scores. There was no suggestion that the MTAS quartile was related to preparedness. For example, F1s in the top quartile did not report greater preparedness than others; neither did those in the lower quartile show any less preparedness.

19.9 Differences between the three medical schools

Three diverse medical schools were selected for this study to see if the type of medical school and curriculum students follow had an impact on their preparedness, following findings in the literature that there are differences in the preparedness of graduates of different schools[14, 15].

The findings of this study suggest there were very few differences between the medical schools and many similarities in preparedness (or lack of it). The main areas of preparedness and lack of preparedness in the qualitative data were almost the same.

There is a suggestion in Warwick's data that, being graduate entry and more mature helped in situations requiring more complex and demanding communication skills.

There is some evidence from this data that Glasgow students, having followed a PBL curriculum throughout, might be more assertive in the way they looked for information i.e. coping well with finding out about paperwork and similar tasks. This finding is also reflected in two items on the cohort questionnaire ('Identifying your own learning needs' and 'Managing your own time effectively') administered at the end of medical school. The increased ability of PBL graduates to ask for help has also been reported elsewhere[2].

The triangulating questionnaire completed by clinical teams suggests that Glasgow is different to the other two universities in a range of areas of practice. However, the data set is small and differences in the professional groups of respondents may bias results. This conclusion should therefore be treated with caution and is worthy of further study. The

portfolio assessment data highlights that all F1s tend to complete the same few procedures early in their F1 year, and leave the same few until later. However this may be due to the availability of opportunities for assessment as well as preparedness.

19.10 Demographic variables

The sample of medical graduates was selected to include males and females, and represent ethnic minorities and those with disabilities. While a fuller study targeting these dimensions would be necessary to be exhaustive, there was no evidence that these dimensions were related to preparedness.

19.11 Conclusion and recommendations

The findings of this study point to one broad conclusion – that undergraduate's preparedness to begin Foundation Programme will be better by gaining more experiential learning in clinical practice in their undergraduate programme. To deliver this, consideration should be given to the following strategies:

- Provide more structured clinical placements, with experiential learning across a range of specialities to balance the opportunistic learning which currently takes place.
- Give medical students a greater role in medical teams, although balanced with patient safety requirements. Map clinical placements to the dimensions of legitimacy and centrality, to move the student into a more central role before they take on the responsibilities of an F1.
- The development of specific teaching on prescribing, focusing on the development of prescribing as a skilled procedure which is subject to the time pressures and contingencies of all clinical skills. Such teaching should place greater emphasis on prescribing as an instance of applied pharmacology, and the need for new doctors to engage with prescribing and develop their own expertise rather than relying on others'.
- Provide more structure in shadowing placements, with greater efforts to ensure F1s shadow their own post
- Consider the possibility moving final exams back to earlier in the final year, or to the penultimate year as is already the case in some medical schools. This may allow a great focus on the development of clinical practice in the final year.

19.12 Strength and limitations of the research

A major strength of this study is in collecting data from many different sources to answer the research question. Bringing together multiple perspectives enables more and different evidence to be considered and increases the validity of data. The sample size (65 in the initial primary sample and 92 triangulating interviews – 213 interviews in total) is large for qualitative research and reinforces the robustness of the data. The evidence on prescribing is a clear demonstration of the effectiveness of this approach – all sources of data on prescribing indicated that preparedness for prescribing was a weakness. This suggests that the often questionable validity of self-reports[16] has not presented a problem for the level of analysis in this study. The questions on preparedness in any event may be seen as more analogous to describing confidence, rather than predictions or assessments of performance[17, 18].

However, all research projects have limitations due to methodology and resources. In this case for example it was not possible to match recruitment of the primary sample at the different medical schools. While Warwick and Newcastle were able to contact a random sample stratified by MTAS academic score, this was not possible in Glasgow where an opportunistic sample was obtained. Nonetheless the Glasgow sample did represent a demographic cross-section and a range of MTAS scores.

Time and resources precluded full piloting and validation of the cohort questionnaire. However, indicators of validity on the dataset collected suggest it does have adequate validity for some inferences to be made. It was administered at shadowing events which were not attended by all F1s, so there is a potential bias in the sample obtained, although no bias in demographic variables was observed. Time was also a factor in development and completion of the triangulation questionnaire. In this case the final number of responses was too low to conduct any validating analysis.

There were differences in portfolio data available – in part due to differences between the English and Scottish portfolios, in part due to differences between electronic and paper portfolios, and in part due to the different research teams having different access to portfolios for organisational reasons. This meant that more detailed comparisons of portfolio completion between sites were not possible.

Following up new graduates only at the end of their first placement does not allow them to report on their preparedness through the whole F1 year. Strengths and weaknesses of their undergraduate experience may emerge throughout the year, and indeed beyond. However, it was important to focus on the first placement initially to identify the immediate issues which have emerged. This point will be addressed in the third interview.

The current study did not consider individual differences such as personality and learning style, although these did emerge in the data as attributions for preparedness. Related issues of organisational culture, and the social-psychological barriers to transition were also not explicitly addressed.

19.13 Further Research

This research has identified common experiences of graduates of three medical schools as they begin Foundation Programme year 1. These common experiences, in terms of the preparedness and unpreparedness for different areas of practice, appear to be more pronounced than the differences which emerge between graduates of different schools. There are questions around the preparedness of new doctors in different clinical areas which remain, and have been elaborated by the research. Some suggestions for further work are:

- Perceptions of preparedness and the impact of undergraduate programme and F1 experience at the end of the F1 year need to be explored. The GMC has agreed to fund a third interview with the primary sample at the end of their first year in June/July 2008. This will identify if any new issues related to lack of preparedness became evident later on in the job. At this point the findings of the research will be related more closely to *Tomorrow's Doctors*.
- The core finding that experiential learning is key to preparedness should be validated by comparison with other medical schools. By comparing graduates of schools which have different programmes of clinical experience in the undergraduate years (rather than simply different curricula) the impact of practical experience may be elaborated.
- The extent to which prescribing skills are learnt and developed is worthy of more detailed study. The use and usefulness of interventions such as the safe prescribing assessment in Newcastle, and on-ward teaching may identify how prescribing and clinical pharmacology are best learnt, and best translated to practice.
- The development of professional identity and the experience of transition are worthy of further study. Identifying the social and social-psychological barriers to transition may aid new doctors as they establish themselves within clinical teams. An increased awareness of organisational cultures as well as formally prescribed roles may make doctors more attuned to their new working environments.

References

1 Lempp H, Seabrook M, Cochrane M, Rees J. The transition from medical student to doctor: perceptions of final year students and PRHOs related to expected learning outcomes. *Clinical Practice*, March 2005, 59(3): 324-329.

2 O'Neill P, Jones A, Willis S, McArdle P. Does a new Undergraduate curriculum based on Tomorrow's Doctors prepare house officers better for their first post? A qualitative study of the views of PRHOs' using critical incidents. *Medical Education* 2003; 37: 1100-1108.

3 Watmough S, Taylor, D and Garden. A. Educational supervisors evaluate the preparedness of graduates from a reformed UK curriculum to work as pre-registration house officers (PRHOs): a qualitative study. *Medical Education* 2006; 40(10): 995-1001.

4 Watmough S, Garden, A and Taylor, D. Pre-registration house officers' views on studying under a reformed medical curriculum in the UK. *Medical Education* 2006; 40(9): 893-899.

5 Dornan T and Bundy C. What can experience add to early medical education? Consensus survey. *BMJ.* 2004 October 9; 329(7470): 834

6 Lempp H, MacCochrane, Seabrook M, Rees J. Impact of educational preparation on medical student in transition from final year to PRHO year: a qualitative evaluation of a new year 5 curriculum in a London medical school. *Medical Teacher* May 2004; 26 (3):276-8

7 Brown JS, Collins A and Duguid P. Situated cognition and the culture of learning. *Educational Researcher* 1989,18:32-42.

8 Lave J and Wenger E. *Situated learning: legitimate peripheral participation.* Cambridge, Cambridge University Press. 1991

9 Mann, KV. Thinking about learning: implications for principle-based professional education. *The Journal of Continuing Education in the Health Professions* 2002. 22; 69-76

10 Dornan, T. and Bundy C. What can experience add to early medical education? Consensus survey. *BMJ.* 2004. 329(7470): 834

11 Tooke, J. *Aspiring to Excellence: Final report of the Enquiry into Modernising Medical Careers*. London: Department of Health 2008

12 Evans DE, Wood DF & Roberts CM The effect of an extended hospital induction on perceived confidence and assessed clinical skills of newly qualified pre-registration house officers. *Medical Education* 2004 38(9), 998-1001

13 Hrisos, S, Illing, J & Burford, B. Portfolio learning for foundation doctors: early feedback on its use in the clinical workplace. *Medical Education*. 2008 42(2):214-23.

14 Cave J, Goldacre M, Lambert T, Woolf K, Jones A, Newly qualified doctors' views about whether their medical school had trained them well BMC *Medical Education*, 2007 7:50

15 Goldacre M, Lambert I, Evans J, Turner G. PRHOs' views on whether their experience at medical school prepared them well for heir jobs: national questionnaire survey. *BMJ* 2003, 326: 1011-101.

16 Colthart, I, Bagnall, G, Evans, A, Allbutt, H, Haig, A, Illing, J, McKinstry, B. The effectiveness of self-assessment on the identification of learner needs, learner activity, and impact on clinical practice: BEME Guide no. 10. *Medical Teacher* (DOI: 10.1080/01421590701881699)

17 Morgan, PJ & Cleave-Hogg, D Comparison between medical students' experience, confidence and competence. *Medical Education* 2002 36(6); 534-539

18 Stewart J.; O'Halloran C.; Barton J.R.; Singleton S.J.; Harrigan P. & Spencer J. Clarifying the concepts of confidence and competence to produce appropriate self-evaluation measurement scales. *Medical Education* 2000 34(11); 903-909

Appendices

Appendix A1: Brief description of Newcastle/Durham curriculum

Since 2001, when a new curriculum was introduced, there have been three routes of entry to the Newcastle-Durham curriculum (for the award of MBBS Newcastle):

- Undergraduate entry via Newcastle University, based in Newcastle
- Undergraduate entry via Durham University, based in Stockton on Teesside
- Graduate entry via Newcastle

The course is divided into two Phases: Phase I comprises years 1 and 2 (except for the graduate-entry programme which combines years 1 and 2 in one long academic year, hence its official title of 'Accelerated MBBS programme'); Phase 2 comprises years 3-5.

There is a very small intake of students direct into 2nd and 3rd year (e.g. biomedical or dental students converting).

The educational philosophy is best described as 'guided discovery learning'. Newcastle was a pioneer in the 1970s and 80s of systems-based integrated teaching, along with early patient contact, a distinct primary and community care and public health focus, and other innovative approaches. Interestingly, Newcastle is now considered to have a 'traditional' curriculum.

Phase I – Newcastle (undergraduate)

The course is case-led, systems-based and delivered as so-called Units covering basic and behavioural sciences with a clinical 'spin'. Units are: Life Cycle; Medicine in the Community; Cardiovascular, Respiratory and Renal; Nutrition, Metabolism and Endocrinology; Thoughts, Senses and Movement; Clinical Sciences and Investigative Medicine; and Personal and Professional Development. There is a mix of lectures, group work (in various group sizes), practicals, skills lab sessions, and so-called 'contextualizing' visits with real patient contact (visits to GP surgery, hospital, antenatal and baby clinics, and community agencies). There is a strong emphasis on clinical and communication skills, ethics and evidence-based practice. Year 1 students are attached in pairs to a pregnant mother and follow her up until after the baby is born, to study the impact of pregnancy and new child on family (The Family Study). Year 2 students are allocated a patient with a long term health problem and follow their progress over several months (The Patient Study) studying the impact of illness on patient and carer. In Year 2 students also undertake their first Student Selected Component (SSC), which runs as a thread through the semester after Christmas, and is based on a topic of interest triggered by the Patient Study.

Phase I – Stockton (undergraduate)

The Stockton curriculum is modelled on the Newcastle course, the terminal learning outcomes for Phase I are the same, and it uses the same Unit structure. The main differences are as follows: smaller year group (~100 *cf* 225 at Newcastle); smaller group sizes; Medicine in the Community has a more anthropological bent, also students spend a significant period of time attached to, and working within a community agency (30 hours each year); more 'contextual' visits (e.g. hospital out-patient clinics); and Life Cycle includes periodic plenary patient presentations.

Phase I – Accelerated Programme

This is modified PBL course with GPs as tutors. Although the terminal learning outcomes are identical to the undergraduate programme, some of the cases are different and delivered in a different sequence, and some content has been omitted or modified to take account of the maturity of the learners.

Phase I - Assessment

There is a diagnostic summative assessment 6 weeks into first year; thereafter at the end of semester and academic year. It comprises written papers and OSCEs. There are also several in-course summative assignments. The assessment schedule is criterion-referenced and is based on a cumulative grade system. There is a formative appraisal at the end of each year.

Phase 2 – Common programme

Newcastle is a regional medical school operating on a 'hub and spoke' basis. In Years 3 and 5 students spend the whole academic year in one of four so-called geographical 'Base Units' (BU) – Tyne (Newcastle & Gateshead); Wear (Sunderland & Durham); Northumberland (Northumberland, Tynedale & Carlisle); and Tees (Teesside and North Yorks). Each BU has a lead Trust and links with a number of other Trusts, GP practices and other Primary Care Providers, and sundry community agencies to deliver the course. The learning outcomes, indicative content, and sequence of rotations in both Stage 3 (Year 3) and Stage 5 (Year 5) are

common to all BUs; there is more flexibility over modes of delivery and detail of content. All students sit the same examinations.

Stage 3

In Stage 3 (Year 3) the main focus is on history taking and examination, diagnosis and basic management. It starts with the 15 week Foundations of Clinical Practice (FoCP) course. Weeks 1-9 have a 'problem/system of the week' format. During weeks 10-15 students integrate and consolidate their experience. There is effective integration between hospital and general practice teaching. For the remaining (post-Christmas) period, students undergo a series of clinical rotations between 2 and 8 weeks in length: Mental health; Reproductive and child health; Infectious diseases; Public health; and Chronic illness, disability and rehabilitation. Teaching involves a combination of seminar work, independent study, and clinical contact. The students also attend a GP practice for ½ day each week in groups of 2-4. Here the teaching is approximately 50% specialty-related, to integrate with hospital-based sessions, and 50% GP-orientated. Students are allocated a so-called 'Continuity patient' early in the year that they follow up for the whole academic year, as with the 2nd year Patient Study, but with a different, more clinical focus. In each rotation students undertake a 'clinical encounter' (based on the miniCEX) and are assessed on their professionalism. There is a summative OSCE at the end of FoCP and an end of year exam comprising two written papers and an OSCE.

Stage 4

The whole student group spends 12 weeks in Newcastle undertaking the Clinical Sciences & Investigative Medicine course, which comprises Investigation and Diagnosis if Human Disease; and Clinical Pharmacology and Therapeutics. There is also a PPD thread (communication, ethics and law, evidence-based approaches) running through the course. This course is summatively assessed with two written papers.

After Christmas students take 3 consecutive 6-week SSCs selected from a large menu, two of which must be distinctly clinical (i.e. involve patient contact in a healthcare setting). Students may arrange so-called 'private' SSCs if they have a plausible topic of interest not on the 'menu' and are able to find a willing volunteer. They may also leave the region if the subject cannot be provided locally. SSCs are assessed by poster, oral presentation, e-portfolio, and in-course tutor assessments.

In the summer of 4th year, students have a clinical elective, comprising 8-9 weeks of clinical activity; most undertake the elective overseas, the majority in the developing world. The elective is assessed using a reflective portfolio.

Stage 5

After a 1 week orientation in Newcastle students spend the rest of fifth year in a BU, different from their 3rd year choice (unless there are strong mitigating circumstances). Before Christmas there are four 3 week senior clinical rotations in general practice, mental health, O&G and child health, followed by a 3 week course called 'Preparation for Practice'(P4P). The latter comprises a mixture of small and large group sessions, with a variable (from BU to BU) amount of patient contact, addressing areas such as advanced communication (breaking bad news, dealing with anger and aggression), patient safety, medical error, and evidence-based practice. During the course students are expected to do some teaching (usually of 3rd year students). There are also inter-professional learning opportunities. Finally students undertake their final SSC, which comprises an ethics case-study based on an ethical issue they have encountered during rotations.

After Christmas students rotate through the 16 week Hospital-based practice (HBP) course which covers acute medicine and surgery, A&E, and critical care. As with the junior rotations in year 3, each senior rotation is assessed with a clinical encounter and a professionalism grading. At the end of HBP, a short revision period is followed by the Finals examination. This comprises a written paper, OSCE, and a single structured long case (from 2008 this component will be replaced by a 4-station PACES-like exam).

Shadowing

Just before the start of the new 'house', the Northern Deanery Foundation School hosts a 2 day introduction to shadowing based in the medical school, following which graduates spend a week shadowing the Foundation Year 1 doctor from whom they are to take over.

Appendix A2: Brief description of Warwick Curriculum

The curriculum in Warwick is exclusively for Graduate entrants with a science backgrounds undertaking a four year fast –track course for MB ChB.

It is divided into two phases: the first phase, which is timetabled for students to spend approximately 75% of their time at the medical school, focuses primarily on ensuring that students have an adequate applied understanding of the scientific background to medicine. This Phase lasts for 18 months. Following successful completion of Phase I students progress to Phase Two, where they undertake two rotations, each of 6 clinical placements eight weeks long in local NHS trusts. Senior and Junior rotation are separated by an intermediate clinical examination and the Final Professional Examination takes place in May of the final year and is followed by Advanced Clinical Practice, including work-shadowing.

Special considerations for the GMC study regarding Warwick doctors graduating in 2006 and 2007

Warwick Medical School was part of Leicester-Warwick Medical Schools until just after the 2006 graduation, and the changes to curriculum following the successful GMC Quality Assurance of Basic Medical Education visit in 2006 did not affect the students graduating in 2007. Therefore these notes refer to the curriculum and assessment which were in place at the relevant time. There has been much incremental development of curriculum since then, including replacement of Phase 1 modular assessments with integrated assessments and developing the system of Clinical Education Supervision in Phase II to provide comprehensive coverage.

Phase 1

The modular structure of Phase 1 is illustrated on the syllabus plan, (below) showing biomedical and social science modules interspersed with clinical learning. For most modules the format is a lecture setting out an overview of the territory to be covered, followed by small group learning

The group learning is not PBL, but it is strongly case-based, and facilitated by clinicians. As well as subject specialists recruited by the module leader there are group learning facilitators who comprise junior doctors as well as senior clinicians. The emphasis in group learning is on learning from each other, to maximise the potential of having students from different scientific backgrounds. Students are expected to apply an equal amount of personal study time to each module, and they are supported by personal tutors in acquiring the essential habits of self-directed learning.

Assessment in Phase I comprised 20 modular assessments, with further assessments of special study modules and the Clinical applications Special Study module which runs through Phase 1 and was assessed on a dissertation and viva. In addition, there were overarching examinations of Phase 1, known as Integrated Medical Science Assessments, in short answer question format, which were an essential element of the decision to allow students to progress to Phase II

Illustration of Phase 1 Syllabus

Semester 1

September – December

Monday	Tuesday	Wednesday	Thursday	Friday
Health in the Community	Gastrointestinal System (CSB)	Clinical Skills 1	Health and Disease in Populations	Molecules and the Human Body
Health in the Community	Human Lifespan	Clinical Skills 1	Clinical Skills Clinical Skills 1	Clinical Skills 1

Semester 2

January – June

Monday	Tuesday	Wednesday	Thursday	Friday
Clinical Skills 2	Infection & the Immune System	Musculoskeletal System	Cardiovascular System	Mechanisms of Disease (CSB)
Health Psychology	Clinical Skills 2	Musculoskeletal System Dissection (Leicester)	Reproductive System	Clinical Skills DISC
			Clinical Skills 2 Lecture	

Semester 3

September – December

Monday	Tuesday	Wednesday	Thursday	Friday
Clinical Skills 2	Mechanisms in Clinical Pharmacology	Urinary System	Clinical Skills/ Various	Special Study Module
Values in Medicine /Introduction to the NHS	Clinical Skills 2	Human Diversity	Respiratory System	Neurobiology
Special Study Module	Special Study Module	Special Study Module	Clinical Skills 2 Lecture /Special Study Module	

Phase II

In the Junior rotation students will undertake eight week placements in psychiatry and General Practice as well as 4 other 'general' placements. On the senior rotation, a six-week elective period is followed by 6 further placements including one in obstetrics and gynaecology and one in child health.

Students are paired up for their clinical placements and usually progress through the entire two and a half years of Phase II with the same clinical partner. For general placements they are attached to 2 consultants of whom one is usually more generalist. A mix of medical and surgical teams is ensured for each students and each will get a similar experience in orthopaedics, anaesthetics and accident and emergency. Beyond that the experience of student partnerships will differ. There is no attempt to ensure that each student works on a placement for each specialism. Instead, the emphasis is on self-directed learning in an apprenticeship setting. Students are given a handbook at the beginning of Phase II, setting out the learning outcomes on which they will be examined at the end, and they are shown the opportunities for learning in all areas. Since 2005, Phase II students have progressively been supported by an individual Clinical Education Supervisor throughout Phase 2.

Placements are planned throughout the local West Midlands, and each week there is an academic half day for systematic coverage of management topics and therapeutics. For the period in question, this comprised student presentations followed by expert clinician input.

Final Professional examination includes two 3-hour written examinations and whole-patient clinical examinations, using the Leicester Assessment Package. All students will complete a minimum of four cases over 4 hours with 8 assessors, and students about whom there is any concern in the initial process, or as a result of placement reports, will undertake double that amount of clinical examination.

In advanced clinical practice, the emphasis is on rechecking and certifying the clinical skills needed for practice as well as education on topics such as death certification and controlled drugs prescribing, followed by work-shadowing.

Appendix A3: Brief description of Glasgow curriculum

The curriculum in Glasgow consists of four main components:

- Problem-based Learning Core,
- Vocational Studies,
- Clinical Core
- Student Selected Modules.

a) FIRST YEAR

PBL Core (Cells to Societies)

Year 1, which is based on a broad overview of medicine, consists of a series of Problem-based Learning sessions. There are normally two such sessions during each week and the year is organised as a series of 6 blocks, each of which normally lasts five weeks. Students work in groups of eight with a facilitator for two hours each session. The facilitator is there to ensure that students don't stray too far from the expected learning outcomes but a student is elected to act as the chairperson and another as the scribe for the group. They work through a clinical scenario using a series of steps (The Glasgow Steps) that lead them to produce a number of group learning outcomes. They then go away to research the learning outcomes using a wide range of resources. Approximately two days after the first session, they feed back their researches to the group and ensure that they all now understand all aspects of the scenario. The scenarios encourage students to cover "the hierarchy of systems" i.e. each scenario includes dimensions from the molecular through organs and body systems up to populations. For example, if a group was studying a scenario about a drunk driver, they would be expected to cover the cellular biology, anatomy, physiology etc. of the liver, the clinical effects and pathology of alcoholism and its effects on families as well as aspects of driving legislation. The PBL group work is supported by "fixed resource sessions" (e.g. laboratories) and a small number of plenary lectures.

Vocational Studies

In Vocational Studies, students learn the professional skills, attitudes and behaviours required of doctors including: communication skills; clinical skills and clinical practice; informatics; understanding patients, people and communities; working with others; systems of care; science in medicine; ethics and law; and personal and professional development. They work in groups of eight students with a trained generalist tutor for three hours a week and undertake a number of clinical and community visits. The topics covered are linked to the PBL core.

During this, they are introduced to patients and to the care of patients in the community and in hospital.

They are summatively assessed in year 1 by five pieces of coursework including a Life History Project and Community Diagnosis Project, the Medical Independent Learning Exercise and an end of year integrated written examination in two papers (five hours in total testing time). They also have a formative Objective Structured Clinical Examination (OSCE).

b) SECOND YEAR

PBL Core (Molecules and Tissues)

The PBL Core continues the pattern of Problem-based Learning sessions and resource sessions established during Year 1.

Vocational Studies

Continues the pattern of Vocational Studies' sessions established during Year 1.

Student Selected Modules (SSMs)

Students select from a list of options, one Student Selected Module. This is undertaken during the second half of the Second Semester. SSMs are five week blocks and students complete seven SSMs during the course that can be selected from a large menu (several hundred topics) or they can propose topics they wish to investigate themselves. Examples include medicine in literature, the pathogenesis of malaria, red blood cell antigens, overweight and obesity, and sports medicine.

The second year assessments include course work including a Family History Project (based on their experiences of several visits to families with new babies), an integrated two paper written examination and a ten station OSCE.

c) THIRD YEAR

PBL Core (Clinical Systems)

The third year of the curriculum consists of a continuation of the PBL Core and Vocational Studies. The PBL sessions take place in hospitals with a consultant facilitator and focus on clinical scenarios.

Vocational Studies

Focuses on Clinical Skills and students undertake a full day in Hospital and a full day in General Practice in alternating weeks for 20 weeks i.e. 10 weeks in hospital and 10 weeks in general practice.

SSMs

Two Student Selected Modules each of 5 weeks' duration are selected from the list of options.

The third year assessments include a year long Longitudinal Care Project, a two paper integrated written examination and a 20 station OSCE.

Elective

Students undertake a period of elective study of a minimum of 4 weeks' duration at the end of the third year which may be an extension of a Student Selected Module and generally focuses on clinical learning opportunities usually outside Glasgow.

Intercalated BSc

Students can undertake a one year or two year intercalated BSc between 3rd and 4thyear.

d) FOURTH YEAR

The Clinical Core

In the Clinical Core, students undertake a two year "apprenticeship" rotation through the major clinical specialities:

- 15 weeks in Medicine including shorter periods in medical specialities such as dermatology, care of the elderly etc.
- 15 weeks in surgery including periods in the surgical specialities such as ear, nose and throat, anaesthetics. etc,
- 5 weeks in General Practice,
- 5 weeks in Child Health,
- 5 weeks in Psychological Medicine,
- 5 weeks in Obstetrics and Gynaecology

We rely heavily or our NHS partners in hospitals (n=25 hospitals) and general practices (n=200 approx. practices) throughout the West of Scotland Region to provide teaching and supervision during these attachments.

SSMs

Two Student Selected Modules, each of five weeks duration, are selected from the list of options.

Elective

Students undertake a period of elective study of a minimum of 4 weeks duration at the end of the fourth year which may be an extension of a Student Selected Module and is commonly undertaken abroad.

e) FIFTH AND FINAL YEAR

The Integrated Core

The Final Year continues the series of clinical attachments commenced in Year 4.

There are also a series of acute care days (6).

SSMs

In Year 5, two Student Selected Modules are undertaken, each of five weeks duration.

The assessment programme in years 4 and 5 includes 40 portfolio cases, 10 educational supervisor ratings, two integrated written papers and a 48 station OSCE – all assessed summatively. Throughout the course there are also multiple opportunities for formative assessment.

Shadowing

The second semester includes a period of work experience in which the student will shadow an FYI doctor for a period of one week (after graduation).

(Since the study cohort graduated, we have added 4 multiprofessional learning sessions in year 4 on prescribing with 4th year pharmacy students from Strathclyde University.

We are also introducing a 10 week Preparation for Practice block in Spring 2009 immediately after the first diet of final examination and before graduation which will focus on areas identified by students, tutors, FY1s and 2s as gaps or weak areas for preparing for the Foundation programme (partly informed by this research). It will replace two SSMs).

Appendix B: Cohort questionnaire

Preparedness to start work as a Foundation Year 1 doctor

Questionnaire for final year medical students at the end of training

All responses will be anonymous

General Medical Council

Newcastle University
POSTGRADUATE INSTITUTE FOR MEDICINE & DENTISTRY

THE UNIVERSITY OF WARWICK

UNIVERSITY of GLASGOW

Please return to:

Research Team
Postgraduate Institute for Medicine and Dentistry
Newcastle University
10-12 Framlington Place
Newcastle upon Tyne, NE2 4AB

Please circle the number which reflects your opinion. If you make a mistake, cross out the wrong number, and circle the correct one.

All questions refer to how prepared you are to start work as an F1 doctor

A. Clinical and practical skills

Please indicate how prepared you are to begin Foundation Year 1 in each of the following areas	Not at all prepared				Fully prepared
1. History taking	1	2	3	4	5
2. Performing a full physical examination	1	2	3	4	5
3. Performing a full mental-state examination	1	2	3	4	5
4. Pre-operative assessment of patients	1	2	3	4	5
5. Interpreting the results of commonly used investigations	1	2	3	4	5
6. Carrying out simple practical procedures (e.g. taking blood, IV access, administering oxygen)	1	2	3	4	5
7. Carrying out complex practical procedures (e.g. bladder catheterisation, operating syringe driver)	1	2	3	4	5
8. Carrying out arterial blood sampling	1	2	3	4	5
9. Dealing with emergency care situations (e.g. CPR/Advanced life support)	1	2	3	4	5
10. Carrying out basic respiratory function tests	1	2	3	4	5
11. Administering oxygen therapy	1	2	3	4	5
12. Administering a nebuliser correctly	1	2	3	4	5
13. Making clinical decisions based on the evidence you have gathered	1	2	3	4	5
14.a Assessing a patient's problems	1	2	3	4	5
14.b Forming plans to investigate and manage a patient's problems	1	2	3	4	5
14.c Involving patients in the process of assessing, forming and managing their problems	1	2	3	4	5
15. Writing safe prescriptions for different types of drugs	1	2	3	4	5
16. Calculating drug dosages	1	2	3	4	5
17. Writing out death certificate, either real or mock	1	2	3	4	5
18. Writing out Part A of a cremation form	1	2	3	4	5
19. Recognising and managing the acutely ill patient	1	2	3	4	5
20. Applying the principles of holistic care	1	2	3	4	5

B. Communication skills

Please indicate how prepared you are to begin Foundation Year 1 in each of the following areas	Not at all prepared				Fully prepared
21. Communicating clearly, sensitively and effectively with patients and their relatives	1	2	3	4	5
22. Communicating effectively with colleagues from a variety of health and social care professions	1	2	3	4	5
23. Communicating with individuals who cannot speak English, including working with interpreters	1	2	3	4	5
24. Breaking bad news to patients and/or relatives	1	2	3	4	5
25. Dealing with difficult and violent patients	1	2	3	4	5
26. Applying knowledge of patient lifestyle, background or religion that may influence diagnosis and management of the patient	1	2	3	4	5
27. Communicating with patients who have mental illness	1	2	3	4	5
28. Using knowledge of legal and ethical issues in practice	1	2	3	4	5
29. Employing a patient centred approach	1	2	3	4	5

C. Teaching and Learning

Please indicate how prepared you are to begin Foundation Year 1 in each of the following areas	Not at all prepared				Fully prepared
30. Demonstrating, explaining to or teaching medical students and colleagues	1	2	3	4	5
31. Using knowledge of the structures and functions of the NHS in practice	1	2	3	4	5
32. Integrating scientific principles into clinical practice	1	2	3	4	5
33. Gaining knowledge of legal and ethical issues (e.g. confidentiality, Mental Health Act, Child Protection)	1	2	3	4	5
34. Applying knowledge of alternative and complementary therapies and how these may affect other treatments	1	2	3	4	5
35. Identifying your own learning needs	1	2	3	4	5
36. Managing your own time effectively	1	2	3	4	5
37. Prioritising tasks effectively	1	2	3	4	5
38. Applying the principles of promoting health and preventing disease	1	2	3	4	5
39. Applying knowledge of how social and psychological factors impinge on patients' health and care	1	2	3	4	5
40. Completing a learning portfolio of evidence to document your progress	1	2	3	4	5

D. Understanding the work environment

Please indicate how prepared you are to begin Foundation Year 1 in each of the following areas	Not at all prepared				Fully prepared
41. Identifying appropriate situations in which to seek help from a senior colleague	1	2	3	4	5
42. Using knowledge of how errors can happen in practice and applying the principles of managing risks	1	2	3	4	5
43. Being honest with patients, colleagues and supervisors	1	2	3	4	5
44. Managing your health in order to protect patients and colleagues	1	2	3	4	5
45. Taking action if colleagues' health and performance puts patients at risk	1	2	3	4	5
46. Making appropriate choices to facilitate your career	1	2	3	4	5

E. Teamworking

Please indicate how prepared you are to begin Foundation Year 1 in each of the following areas	Not at all prepared				Fully prepared
47. Working as part of a team with other healthcare professions	1	2	3	4	5
48. Working with colleagues with different lifestyles, backgrounds or religions	1	2	3	4	5
49. Respecting the roles and expertise of other health and social care professionals	1	2	3	4	5
50. Demonstrating awareness of the policies and procedures to be followed in the event of problems in clinical practice	1	2	3	4	5
51. Demonstrating effective leadership skills	1	2	3	4	5
52. Asserting yourself and expressing your views clearly to colleagues	1	2	3	4	5
53. Handing over care of a patient (e.g. at the end of a shift)	1	2	3	4	5

F. Further Comments

54. Please give any additional comments, positive or negative about your medical school training

G. Demographics

Where did you Study?	☐1 Glasgow ☐2 Newcastle ☐3 Warwick	How old are	□1 20 – 25 □2 26- 30 □3 31- 35 □4 36 – 40 □541 and above

55. Are you…?	☐[1] Male ☐[2] Female

56. Do you consider yourself to have a disability? (Under the Disability Discrimination Act 1995, a disability is defined as a "physical or mental impairment which has a substantial and a long term effect on a person's ability to carry out normal day to day activities")	☐1 Yes ☐2 No ☐[3] Do not wish to disclose

57. In which ethnic group do you classify yourself?	<u>White</u> ☐[1] British ☐[2] Irish ☐[3] Any other white background: ……..	<u>Mixed</u> ☐[4] White & Black African ☐[5] White & Black Caribbean ☐[6] White & Asian ☐[7] Any other mixed background: ……..
	<u>Asian</u> ☐[8] Indian ☐[9] Pakistani ☐[10] Bangladeshi ☐[11] Chinese ☐[12] Any other Asian background: ..……..	<u>Black</u> ☐[13] Caribbean ☐[14] African ☐[15] Any other black background: ……..
	☐[16] Any other ethnic background: ……..	☐[17] Do not wish to disclose

Thank you for completing this questionnaire

Appendix C: Interview schedule for primary sample (initial interviews)

We are looking at preparedness for practice as a doctor and we want to explore with you areas where you feel prepared and areas where you do not feel prepared.

1a Firstly are you looking forward to starting work as a doctor?

(explore expectations and fears)

1b How much of a change do you think it will be going from medical student to being a doctor? In what ways?

2. In what areas do you feel fully prepared to start work as a doctor?

(probe for details and list areas)

3. In what areas do you feel less prepared?

(probe for details and list areas)

Prompts for areas not covered in Questions 2 and 3:

(i) Clinical tasks
(ii) Prescribing
(iii) Anatomy
(iv) Communication
(v) Roles and responsibilities.
(vi) Handover
(vii) Others' roles and responsibilities
(viii) Portfolio
(ix) Hospital procedures

4. Are there any areas which you are really quite worried about?

(probe for details and list areas)

5. What additional training or information would you have liked to receive?

Appendix D: GMC telephone interview questions – follow up questions for primary sample

Just to remind you about the study, we are looking at the preparedness of medical graduates going into F1.

When we last interviewed you in July we asked you how prepared you felt to start work.

This interview will focus on your experiences during in your first placement and again we will ask you questions about how prepared you were to start work as a doctor.

1. Can I start by asking you, do you feel like a doctor now?
   What has contributed to that feeling?

Background Questions

Firstly we would like to ask you some general questions about your first F1 placement

What was your first F1 placement?

2. Which hospital were you in?
3. Which specialty?
4. Did you have any experience of this speciality before?

Yes No

5. Was it in this hospital?

Yes No

6. Had you trained in this hospital before?

Yes No

I would like to ask you some questions about your shadowing period

7. Did you shadow this job before you started it on the 1st August?

Yes No

8. How long was the shadowing period?
9. Was this long enough? Yes No
10. Was it helpful? In what way?
11. Were there any difficulties with shadowing? (e.g. did not shadow the actual F1 placement, no F1 to shadow)

We are trying to identify factors that have helped or hindered you in the transition from medical graduates to F1

12. First of all what in particular has helped you in making this transition?

    Who has helped? For example people at work, at home?

    What has helped? For example, induction, shadowing, information packs or other documents?
13. What has hindered you in making this transition? For example, lack of information, not knowing the system, people not telling you things?
14. Thinking back over your first placement, in which areas do you think you were fully prepared to work as an F1 doctor?
15. Thinking back over your first placement, in which areas did you feel less prepared for work as an F1 doctor?

Now I would like to go through a list of areas that were identified as themes from the initial interviews we did last summer.

16. Have you had any difficulties with clinical and practical skills, for example history taking, making clinical decisions based on the evidence you have gathered, venepuncture, cannulas, catheterisation?
17. Have you had any difficulties with prescribing, for example pharmacology, calculating dosages and drug reactions?
18. Have you had any difficulties with recognising and managing acute illness?
19. Has your knowledge of anatomy been sufficient?
20. Have you had any difficulties with hospital procedures, for example requesting blood tests and x-rays?

Own role and team working

21. Have you been clear about your own role as an F1 and your areas of responsibility?
22. Have you been clear about the roles and responsibilities of other team members, for example senior doctors, nurses, pharmacists?
23. What have been the challenges of working as part of a team?
24. What type of things have you needed to ask for help with?
    24.1 Who have you asked?
    24.2 How easy or difficult has it been to ask for help?
    24.3 Did you get the help you needed?
25. How easy or difficult was it to communicate with senior doctors?
    What about other doctors?
26. How easy or difficult was it to communicate with nurses?
27. How easy or difficult was it to communicate with pharmacists?
28. Have you had any difficulty with handovers at the end of a shift?

Relationships with patients

29. How easy or difficult did you find communicating with patients?
    Any language difficulties?
30. What have been the more challenging areas of communication?
31. Did you feel prepared for the main legal and ethical issues you came across, for example consent, patient rights, complaints?

Learning and Assessment

32. Thinking about the portfolio assessment, what assessments have you done and how many of each?

England:

Case-based discussion? ___

Mini CEX ___

MiniPAT / TAB __

DOPS___

Scotland:

MSF __

WPA __

Which DOPS have you completed?

Venepuncture	
Cannulation	
Blood Culture (Peripheral)	
Blood Culture (Central)	
IV Infusions	
ECG	
Arterial Blood Sampling (Radial/Femoral “stab”)	
SC Injection	
ID Injection	
IM Injection	
IV Injection	
Urethral Catheterisation	
Airway Care	
NG Tube Insertion	
Other	

Which WPA have you completed?

Venous access and IV Cannulation	
Blood culture peripheral and Blood culture central	
IV infusions	
ECG	
Arterial blood sampling	
Injection	
Catheterisation	
Basic CPR and airway management	
Naso Gastric Tube	
Issue death certificate	
Take & interpret blood pressure	
Knows & applies principles of infection control	
Spirometry & peak flow	
IV medicine	
Use local anaesthetic	

How easy or difficult have you found these assessments?

33. What learning needs did you identify during this placement?
34. How prepared were you for teaching medical students?

35. All F1s are likely to make mistakes, as they are new to the job, what type of mistakes did you make?
    What did you do when you realised you had made a mistake?
    What was the response?
36. Can you tell me about a time during your first F1 placement when you felt you were not really prepared for your role as a newly qualified doctor? What did this involve? In exactly what way did you not feel prepared?
37. How could you have been better prepared for this incident? (e.g. medical school training, induction)
38. Did you feel that the staff that you worked with had appropriate expectations of you as an F1 doctor or were they higher or lower than your abilities?
39. Have you experienced behaviour from others that has affected your confidence or self esteem?

General skills

40. How easy or difficult was it to prioritise your workload?
41. How easy or difficult was it to gain an understanding of how the NHS works?

Recommendations and future

42. Do you feel prepared for your next placement?
    If not why not?
43. In hindsight is there anything that could have been done to prepare you more for work as an F1 doctor?

Finally can I just mention a couple of other things

If we are able to obtain further funding for a further follow up telephone interview at the end of your F1 year would you be willing for us to contact you again?
Yes No

You have already been told that this study is to compare three different medical schools. We would like to use the same data to compare with overseas graduates. Is that alright with you?
Yes No

A separate part of the study is to interview people who work with F1 doctors and ask them about preparedness. We would like to send you 5 letters to pass on to people you have worked with asking them if they are willing to take part in the research and to contact the research team directly. Would you be willing to distribute the letters to the 5 people?
Yes No

(STOP TAPE HERE)

Please could you give us your postal address so that we are able to send you the letters?
Address ----------

Many thanks for your time and good luck with your next placement.

Appendix E: Clinical teams questionnaire

Preparedness to start work as a Foundation Year 1 (F1) doctor

Questionnaire for Clinicians who work with Foundation Year 1 doctors

Funded by:

General Medical Council

Please return to:

Research Team
Northern Deanery
Newcastle University
10-12 Framlington Place
Newcastle upon Tyne, NE2 4AB

This questionnaire is about the preparedness of new doctors who started Foundation Year 1 in August 2007.

A. Contact with F1s

1. **How many F1s did you work with between August and November 2007?** ○

2. **How often did you have contact with these F1s? Please tick one box**

Every day ○ Weekly ○ Fortnightly ○ Monthly ○ Less than monthly ○

B. Clinical and Practical skills

3. **Think about the F1(s) who started work with you in August 2007.**
Please tick the box which best describes how prepared they were when they started work.

Overall, were the F1s prepared for…	Prepared	Not prepared	Don't know	Please write comments
History taking	○ 1	○ 2	○ 3	
Examination	○ 1	○ 2	○ 3	
Cannulation	○ 1	○ 2	○ 3	
Catheterisation	○ 1	○ 2	○ 3	
Venepuncture	○ 1	○ 2	○ 3	
NG tube	○ 1	○ 2	○ 3	
Arterial blood sampling	○ 1	○ 2	○ 3	
Giving IV drugs	○ 1	○ 2	○ 3	
Setting up IV drip	○ 1	○ 2	○ 3	
Prescribing	○ 1	○ 2	○ 3	
Prioritising their work load	○ 1	○ 2	○ 3	
Hospital procedures (requests etc)	○ 1	○ 2	○ 3	
Acute management	○ 1	○ 2	○ 3	
Working with a multi disciplinary team	○ 1	○ 2	○ 3	
Handover	○ 1	○ 2	○ 3	
Making clinical decisions	○ 1	○ 2	○ 3	
The anatomy they needed to know	○ 1	○ 2	○ 3	
Any other (please specify)	○ 1	○ 2	○ 3	

4. **Please add any further comments about new F1s' clinical and practical skills:**

5. **Were there any areas in which F1s still seemed unprepared at the end of the placement in November 2007?**
If so please give examples:

C. Error

6. **Have you witnessed or been directly aware of F1s making any mistakes?**

Yes ○ 1 No ○ 2

7. Have you witnessed or been directly aware of F1s having any 'near-misses'?

Yes ☐ 1 No ☐ 2

8. In which of these areas have either the mistakes or the near misses occurred?

	Never	Sometimes	Often	Don't know
Prescribing	○	2	3	4
Adhering to hospital procedures	○ 1	2	3	4
Diagnosis/medical knowledge	○ 1	2	3	4
Calling for senior help	○ 1	2	3	4
Managing acutely ill patients	○ 1	2	3	4
Other (please specify)	○ 1	2	3	4

9. Please give details (without any identifying information) of mistakes or near misses:

D. Communication skills

10. In general how would you rate the communication skills of the F1s when they started?

Poor ☐ 1 Adequate ☐ 2 Good ☐ 3 Excellent ☐ 4 Don't know ☐ 5

11. How would you rate the communication skills of the F1s in each of these areas?

	Poor	Adequate	Good	Excellent	Don't Know
Dealing with patients generally	○ 1	2	3	○ 4	5
Explaining management and drug treatment to patients	○ 1	2	3	○ 4	5
Negotiating a treatment plan with patients	○ 1	2	3	○ 4	5
Using appropriate vocabulary	○ 1	2	3	○ 4	5
Dealing with challenging patients	○ 1	2	3	○ 4	5
Dealing with relatives	○ 1	2	3	○ 4	5
Communicating appropriately with pharmacists	○ 1	2	3	○ 4	5
Asking for help from a senior doctor	○ 1	2	3	○ 4	5
Asking for help from a nurse	○ 1	2	3	○ 4	5

12. Please add any further comments you have about new F1s' communication skills:

13. Are there any other areas with which you feel new F1s need additional support when they start work?

E. Demographics

14. What speciality/departments are you attached to? Please tick one or more boxes.

Medicine	General	
	Emergency	
	Intensive Care/ITU/HDU	
	Other (please specify):	

Paediatrics	
Obs & Gynae	

Psychiatry	Child & Adolescent	
	Adult	
	Elderly	
	Other (please specify)	

Surgery	General	
	Orthopaedics	
	Urology	
	ENT	
	Other (please specify)	

Other (please specify)	

15. How many years have you worked with F1s/House Officers? ( )

16. Had the F1(s) you worked with between August and November 2007 graduated from Newcastle Medical School?

Yes [ ] 1 No [ ] 2 At least one had [ ] 3 Don't know [ ] 4

17. Are you…?

Male [ ] 1 Female [ ] 2

18. How old are you?

20 – 29 [ ] 1 30 – 39 [ ] 2 40 – 49 [ ] 3 50 or above [ ] 4

19. Please tick the box which reflects your job title.

F2 [ ] 1	Staff nurse [ ] 2	Physiotherapist [ ] 3
SpR/ST [ ] 4	Sister [ ] 5	Occupational Therapist [ ] 6
Consultant [ ] 7	Nurse Consultant [ ] 8	Other (please specify): [ ] 9

Thank you very much for completing the questionnaire.

Appendix F: Pharmacist questionnaire

Preparedness to start work as a Foundation Year 1 (F1) doctor

Questionnaire for Pharmacists who work with

Foundation Year 1 doctors

Funded by:

General Medical Council

Please return to:

Research Team
Northern Deanery
Newcastle University
10-12 Framlington Place
Newcastle upon Tyne, NE2 4AB

This questionnaire is about the preparedness of new doctors who started Foundation Year 1 in August 2007.

F. Contact with F1s

20. How many F1s did you work with between August and November 2007? ☐

21. How often did you have contact with these F1s? Please tick one box

Every day ☐ 1 Weekly ☐ 2 Fortnightly ☐ 3 Monthly ☐ 4 Less than monthly ☐ 5

G. Prescribing

58. Think about the F1(s) who started work with you in August 2007.

Please tick the box which best describes how prepared they were when they started work.

Overall, were the F1s prepared for…	Prepared	Not prepared	Don't know	Please write comments
Taking an accurate drug history	1	2	3	
Choosing appropriate drugs	1	2	3	
Calculating correct dosages	1	2	3	
Writing prescriptions clearly and in the correct format	1	2	3	
Completing drug charts appropriately	1	2	3	
Being aware of drug interactions	1	2	3	
Applying pharmacological knowledge	1	2	3	
Appropriate use of the BNF	1	2	3	
Demonstrating awareness of safe use of fluids	1	2	3	
Recognising and initiating action for common adverse effects of drugs	1	2	3	
Anything other particular areas of prescribing? (please specify)	1	2	3	

22. Please add any further comments you have about new F1s' prescribing:

23. Were there any areas in which F1s still seemed unprepared at the end of the placement in November 2007?

If so please give examples:

H. Error

24. Have you witnessed or been directly aware of F1s making any mistakes?

Yes [1] No [2]

25. Have you witnessed or been directly aware of F1s having any 'near-misses'?

Yes [1] No [2]

26. In which of these areas have either the mistakes or the near misses occurred?

	Never	Sometimes	Often	Don't know
Prescribing – choosing appropriate drugs	1	2	3	4
Prescribing – calculating doses	1	2	3	4
Prescribing – completing prescriptions/drug charts	1	2	3	4
Adhering to hospital procedures and policies with regard to prescribing	1	2	3	4
Adhering to legislation on prescription of controlled drugs	1	2	3	4
Diagnosis/medical knowledge	1	2	3	4
Calling for senior help	1	2	3	4
Managing acutely ill patients	1	2	3	4
Other (please specify)	1	2	3	4

27. Please give details (without any identifying information) of mistakes or near misses:

I. Communication skills

28. In general how would you rate the communication skills of the F1s when they started?

Poor [1] Adequate [2] Good [3] Excellent [4] Don't know [5]

29. How would you rate the communication skills of the F1s in each of these areas?

	Poor	Adequate	Good	Excellent	Don't Know
Dealing with patients generally	1	2	3	4	5
Explaining management and drug treatment to patients	1	2	3	4	5
Negotiating a treatment plan with patients	1	2	3	4	5
Using appropriate vocabulary	1	2	3	4	5
Dealing with challenging patients	1	2	3	4	5
Dealing with relatives	1	2	3	4	5
Communicating appropriately with pharmacists	1	2	3	4	5
Communicating with doctors	1	2	3	4	5
Communicating with nurses	1	2	3	4	5

30. Please add any further comments you have about new F1s' communication skills:

31. Are there any other areas with which you feel new F1s need additional support when they start work?

J. Demographics

32. What speciality/departments are you attached to? Please tick one or more boxes.

Medicine	General	1
	Emergency	2
	Intensive Care/ITU/HDU	3
	Other (please specify):	4
Surgery	General	5
	Orthopaedics	6
	Urology	7
	ENT	8
	Other (please specify)	9
Paediatrics		10
Obs & Gynae		11
Psychiatry	Child & Adolescent	12
	Adult	13
	Elderly	14
	Other (please specify)	15
Other (please specify)		16

33. How many years have you worked with F1s/House Officers? ☐

34. Had the F1(s) you worked with between August and November 2007 graduated from Newcastle Medical School?

Yes ☐ 1 No ☐ 2 At least one had ☐ 3 Don't know ☐ 4

35. Are you…?

Male ☐ 1 Female ☐ 2

36. How old are you?

20 – 29 ☐ 1 30 – 39 ☐ 2 40 – 49 ☐ 3 50 or above ☐ 4

Thank you very much for completing the questionnaire.

Appendix G: Safe prescribing assessment questions

QUESTION 1

A frail elderly gentleman is admitted from a nursing home with pyelonephritis. The letter from the nursing home states that his usual medication is:

Aspirin 75mg each morning

Digoxin 0.0625mg each morning,

Paracetamol 1g qds.

He also requires IV cefuroxime 750mg tds for the pyelonephritis (to be given for 24hours and then reviewed).

Write up a drug chart for this gentleman. He has no known allergies.

Patient: Benjamin Witton Hospital No: 683957

Address: 1 Perth Road

Yarm

DOB: 9/4/22

Consultant: Dr A Baker

Ward: 29

QUESTION 2

Write a prescription for a patient going home on morphine sulphate modified release 30mg every 12 hours. A 14-day supply is required.

Patient: Annie Robson Hospital No: 492938

Address: 49 Newton Ave

Whitley Bay

DOB: 28/6/47

Consultant: Dr J Smith

Ward: 14

QUESTION 3

A 70 kg patient who is in atrial fibrillation and has not responded to digoxin, requires an urgent loading dose of amiodarone. The patient requires an infusion 5mg/kg of amiodarone to be administered in 250ml of fluid over 2 hours.

Write an IV prescription for the loading dose of amiodarone as a rate controlled infusion (ml/hr).

Patient: Carole Smith Hospital No: 253748

Address: 27 Grosvenor Gardens

Jesmond

DOB: 4/8/50

Consultant: Dr S Morrison

Ward: 24

QUESTION 4

A 60 kg man with acute severe asthma is deteriorating and it is decided to treat him with IV aminophylline. He has not previously been treated with theophylline. He has no known drug allergies.

Complete an IV prescription for both initial treatment and continued infusion (Prescribe infusion in 500ml fluid at calculated starting dose assuming subsequent review and drug level monitoring. The regimen used should be realistic for clinical use and not impose an undue fluid burden on the patient and be expressed as ml/hr).

Patient: John Knox Hospital No:342687

Address: 4 Tadcaster Road

Bedlington

DOB: 12/12/62

Consultant: Dr J Wilson

Ward 4

QUESTION 5

A patient has been prescribed morphine sulphate SR 20mg PO b.d. regularly, and morphine sulphate 10mg every four hours when required for breakthrough pain.

Tick the box according to which formulations would be appropriate to prescribe (there may be more than one correct answer in each category):

regularly?

- ☐ Sevredol 10mg tablets
- ☐ Oramorph liquid 10mg/5ml
- ☐ Sevredol 20mg tablets
- ☐ MST Continus10mg tablets

as required?

- ☐ Sevredol 10mg tablets
- ☐ Oramorph liquid 10mg/5ml
- ☐ MST Continus10mg tablets

QUESTION 6

What effect might you expect the co-administration of the following drugs to have on warfarin therapy (more than one effect may apply).

Drug	Increase effect of warfarin	Decrease effect of warfarin	No interaction with warfarin
Amiodarone			
Rifampicin			
Bendroflumethiazide			
Ciprofloxacin			
Phenytoin			

QUESTION 7

Classify the following 9 antibiotics for administration to a patient who is documented to have had an anaphylactic reaction to penicillin (Tick appropriate column):

Drug	Can be given safely	To be avoided
Flucloxacillin		
Augmentin		
Amoxil		
Cefuroxime		
Ciprofloxacin		
Clarithromycin		
Tazocin		
Meropenem		
Rifampicin		

QUESTION 8

An adult patient with known renal impairment and an estimated GFR of 15ml/min is admitted with an acute infection. Microbiology have recommended meropenem to be given as an iv injection over 5 mins. He has no known allergies.

Write a prescription for this patient on an inpatient drug chart.

Patient: Alan Baxter

Address: 7 Yeoman Court

Newcastle upon Tyne

DOB: 19/7/47

Consultant: Dr P Brown

Ward 10

Appendix H: Mean scores by item for each site

The table gives means and standard deviations for each item for each location. Figures in bold indicate significant differences by post hoc tests following analysis of variance (ANOVA; $p < 0.05$). Where one figure is highlighted, it is significantly different from both others, which are not significantly different from each other. Where two figures are highlighted they are different from each other, but not from the third. Where all three are highlighted, all are significantly different from each other. Where no figures are highlighted, ANOVA indicates no significant difference on that item.

Table H1. Means and standard deviations for all items for each location

	Glasgow		Newcastle		Warwick	
	Mean	**SD**	**Mean**	**SD**	**Mean**	**SD**
q1 History taking	4.328	.533	4.243	.540	4.361	.631
q2 Performing a full physical examination	4.153	.650	**4.040**	**.613**	**4.230**	**.640**
q3 Performing a full mental-state examination	**3.321**	**.797**	3.507	.751	**3.699**	**.735**
q4 Pre-operative assessment of patients	**2.878**	**.920**	3.000	.792	**3.197**	**.757**
q5 Interpreting the results of commonly used investigations	**3.883**	**.647**	3.637	.670	3.628	.621
q6 Carrying out simple practical procedures (e.g. taking blood, IV access, administering oxygen)	3.985	.886	3.946	.707	**3.508**	**.855**
q7 Carrying out complex practical procedures (e.g. bladder catheterisation, operating syringe driver)	2.679	1.010	**2.911**	**.858**	**2.626**	**.863**
q8 Carrying out arterial blood sampling	3.450	1.090	3.564	.943	**2.958**	**.955**
q9 Dealing with emergency care situations (e.g. CPR/ALS)	3.374	.788	3.404	.872	**3.058**	**.788**
q10 Carrying out basic respiratory function tests	3.298	1.079	3.513	.860	**2.869**	**.909**
q11 Administering oxygen therapy	3.298	.974	**3.743**	**.851**	3.361	.928
q12 Administering a nebuliser correctly	2.985	1.074	**3.566**	**.863**	2.926	1.001
q13 Making clinical decisions based on the evidence you have gathered	3.359	.713	3.321	.754	3.421	.629
q14a Assessing a patient's problems	3.634	.659	3.742	.623	3.680	.633
q14b Forming plans to investigate and manage a patient's problems	3.538	.624	3.571	.659	3.645	.644
q14c Involving patients in the process of assessing, forming and managing their problems	**3.580**	**.832**	3.790	.801	3.934	.713
q15 Writing safe prescriptions for different types of drugs	2.893	.963	2.982	.863	2.983	.836
q16 Calculating drug dosages	**2.252**	**.964**	**2.982**	**.956**	**2.574**	**.890**
q17 Writing out death certificate, either real or mock	**2.679**	**1.090**	**3.711**	**.791**	**3.074**	**.883**
q18 Writing out Part A of a cremation form	**2.145**	**1.039**	**2.628**	**1.081**	**3.107**	**.851**
q19 Recognising and managing the acutely ill patients	3.443	.776	3.411	.810	3.390	.685
q20 Applying the principles of holistic care	3.664	.891	3.627	.927	3.691	.860
q21 Communicating clearly, sensitively and effectively with patients and their relatives	4.130	.717	4.138	.622	4.106	.798
q22 Employing a patient centred approach	4.130	.695	4.027	.632	4.073	.748
q23 Communicating with individuals who cannot speak English, including working with interpreters	3.328	1.019	3.351	.843	3.344	.925
q24 Breaking bad news to patients and/or relatives	3.412	.876	3.434	.753	**3.073**	**.812**
q25 Dealing with difficult and violent patients	2.954	1.029	**3.179**	**.870**	**2.836**	**.856**
q26 Applying knowledge of patient lifestyle, background or religion that may influence diagnosis and management of the patient	3.515	.865	3.580	.781	3.585	.735
q27 Communicating with patients who have mental illness	3.489	.931	3.527	.761	3.508	.752
q28 Using knowledge of legal and ethical issues in practice	3.153	.898	3.231	.866	3.174	.782
q29 Employing a patient centred approach	**4.015**	**.784**	**4.222**	**.658**	4.049	.756
q30 Demonstrating, explaining to or teaching medical students and colleagues	3.336	.900	**3.717**	**.748**	3.463	.852
q31 Using knowledge of the structures and functions of the NHS in practice	2.756	.842	2.907	.805	2.976	.741
q32 Integrating scientific principles into clinical practice	3.419	.757	3.469	.749	3.525	.633
q33 Gaining knowledge of legal and ethical issues (e.g. confidentiality, Mental Health Act)	3.369	.882	3.293	.740	3.344	.701
q34 Applying knowledge of alternative and complementary therapies and how these may affect other treatments	**2.588**	**.960**	**2.928**	**.965**	**3.285**	**.795**
q35 Identifying your own learning needs	**4.290**	**.638**	3.902	.612	3.959	.583
q36 Managing your own time effectively	**4.084**	**.724**	**3.673**	**.698**	**3.876**	**.600**
q37 Prioritising tasks effectively	3.817	.732	**3.435**	**.744**	3.818	.619
q38 Applying the principles of promoting health and preventing disease	**3.870**	**.684**	**3.677**	**.671**	3.802	.600
q39 Applying knowledge of how social and psychological factors impinge on patients' health and care	3.954	.678	3.978	.715	3.975	.661
q40 Completing a learning portfolio of evidence to document your progress	3.748	.923	3.704	.792	**3.439**	**.821**
q41 Identifying appropriate situations in which to seek help from a senior colleague	3.954	.732	**3.750**	**.836**	4.057	.705
q42 Using knowledge of how errors can happen in practice and applying the principles of managing risks	3.473	.835	3.567	.718	3.650	.640
q43 Being honest with patients, colleagues and supervisors	4.412	.619	4.344	.658	4.244	.682
q44 Managing your health in order to protect	4.221	.694	4.049	.763	4.016	.813
q45 Taking action if colleagues' health and performance puts patients at risk	3.450	.962	3.438	.982	3.438	.855
q46 Making appropriate choices to facilitate your career	3.546	.997	3.446	.892	3.425	.785
q47 Working as part of a team with other healthcare professions	4.420	.581	4.280	.646	4.279	.695
q48 Working with colleagues with different lifestyles, backgrounds or religions	**4.542**	**.558**	4.373	.629	4.344	.665
q49 Respecting the roles and expertise of other health and social care professionals	4.481	.586	4.391	.596	4.350	.669
q50 Demonstrating awareness of the policies and procedures to be followed in	3.618	.907	3.574	.812	3.582	.832
q51 Demonstrating effective leadership skills	**3.832**	**.735**	3.612	.796	3.579	.814
q52 Asserting yourself and expressing your views clearly to colleagues	3.695	.803	3.560	.880	3.648	.822
q53 Handing over care of a patient (e.g. at the end of a shift)	3.275	1.046	**3.188**	**.957**	**3.472**	**.843**

Appendix I: Questionnaire items in order of ascending mean

The table arranges the questionnaire items in order of ascending mean score for the overall sample, and for each location. The midpoint of the scale is 3.

Table I1. Questionnaire items in ascending order of overall mean score.

Rank	Overall	Mean	Glasgow	Mean	Newcastle	Mean	Warwick	Mean
1.	q18 Writing out Part A of a cremation form	2.62	q18 Writing out Part A of a cremation form	2.15	q18 Writing out Part A of a cremation form	2.63	q16 Calculating drug dosages	2.57
2.	q16 Calculating drug dosages	2.68	q16 Calculating drug dosages	2.25	q31 Using knowledge of the structures and functions of the NHS in practice	2.91	q7 Carrying out complex practical procedures (e.g. bladder catheterisation, operating syringe driver)	2.63
3.	q7 Carrying out complex practical procedures (e.g. bladder catheterisation, operating syringe driver)	2.77	q34 Applying knowledge of alternative and complementary therapies and how these may affect other treatments	2.59	q7 Carrying out complex practical procedures (e.g. bladder catheterisation, operating syringe driver)	2.91	q25 Dealing with difficult and violent patients	2.84
4.	q31 Using knowledge of the structures and functions of the NHS in practice	2.88	q7 Carrying out complex practical procedures (e.g. bladder catheterisation, operating syringe driver)	2.68	q34 Applying knowledge of alternative and complementary therapies and how these may affect other treatments	2.93	q10 Carrying out basic respiratory function tests	2.87
5.	q34 Applying knowledge of alternative and complementary therapies and how these may affect other treatments	2.93	q17 Writing out death certificate, either real or mock	2.68	q15 Writing safe prescriptions for different types of drugs	2.98	q12 Administering a nebuliser correctly	2.93
6.	q15 Writing safe prescriptions for different types of drugs	2.96	q31 Using knowledge of the structures and functions of the NHS in practice	2.76	q16 Calculating drug dosages	2.98	q8 Carrying out arterial blood sampling	2.96
7.	q4 Pre-operative assessment of patients	3.02	q4 Pre-operative assessment of patients	2.88	q4 Pre-operative assessment of patients	3.00	q31 Using knowledge of the structures and functions of the NHS in practice	2.98
8.	q25 Dealing with difficult and violent patients	3.03	q15 Writing safe prescriptions for different types of drugs	2.89	q25 Dealing with difficult and violent patients	3.18	q15 Writing safe prescriptions for different types of drugs	2.98
9.	q28 Using knowledge of legal and ethical issues in practice	3.19	q25 Dealing with difficult and violent patients	2.95	q53 Handing over care of a patient (e.g. at the end of a shift)	3.19	q9 Dealing with emergency care situations (e.g. CPR/Advanced life support)	3.06
10.	q12 Administering a nebuliser correctly	3.24	q12 Administering a nebuliser correctly	2.98	q28 Using knowledge of legal and ethical issues in practice	3.23	q24 Breaking bad news to patients and/or relatives	3.07
11.	q17 Writing out death certificate, either real or mock	3.27	q28 Using knowledge of legal and ethical issues in practice	3.15	q33 Gaining knowledge of legal and ethical issues (e.g. confidentiality, Mental	3.29	q17 Writing out death certificate, either real or mock	3.07
12.	q53 Handing over care of a patient (e.g. at the end of a shift)	3.28	q53 Handing over care of a patient (e.g. at the end of a shift)	3.27	q13 Making clinical decisions based on the evidence you have gathered	3.32	q18 Writing out Part A of a cremation form	3.11
13.	q10 Carrying out basic respiratory function tests	3.29	q10 Carrying out basic respiratory function tests	3.30	q23 Communicating with individuals who cannot speak English, including working with interpreters	3.35	q28 Using knowledge of legal and ethical issues in practice	3.17
14.	q9 Dealing with emergency care situations (e.g. CPR/Advanced life support)	3.31	q11 Administering oxygen therapy	3.30	q9 Dealing with emergency care situations (e.g. CPR/Advanced life support)	3.40	q4 Pre-operative assessment of patients	3.20
15.	q33 Gaining knowledge of legal and ethical issues (e.g. confidentiality, Mental	3.33	q3 Performing a full mental-state examination	3.32	q19 Recognising and managing the acutely ill patients	3.41	q34 Applying knowledge of alternative and complementary therapies and how these may affect other treatments	3.28
16.	q24 Breaking bad news to patients and/or relatives	3.34	q23 Communicating with individuals who cannot speak English, including working with interpreters	3.33	q24 Breaking bad news to patients and/or relatives	3.43	q23 Communicating with individuals who cannot speak English, including working with interpreters	3.34
17.	q23 Communicating with individuals who cannot speak English, including working with interpreters	3.34	q30 Demonstrating, explaining to or teaching medical students and colleagues	3.34	q37 Prioritising tasks effectively	3.43	q33 Gaining knowledge of legal and ethical issues (e.g. confidentiality, Mental	3.34
18.	q13 Making clinical decisions based on the evidence you have gathered	3.36	q13 Making clinical decisions based on the evidence you have gathered	3.36	q45 Taking action if colleagues' health and performance puts patients at risk	3.44	q11 Administering oxygen therapy	3.36
19.	q8 Carrying out arterial blood sampling	3.38	q33 Gaining knowledge of legal and ethical issues (e.g. confidentiality, Mental	3.37	q46 Making appropriate choices to facilitate your career	3.45	q19 Recognising and managing the acutely ill patients	3.39
20.	q19 Recognising and managing the acutely ill patients	3.41	q9 Dealing with emergency care situations (e.g. CPR/Advanced life support)	3.37	q32 Integrating scientific principles into clinical practice	3.47	q13 Making clinical decisions based on the evidence you have gathered	3.42
21.	q45 Taking action if colleagues' health and performance puts patients at risk	3.44	q24 Breaking bad news to patients and/or relatives	3.41	q3 Performing a full mental-state examination	3.51	q46 Making appropriate choices to facilitate your career	3.43

Rank	Overall	Mean	Glasgow	Mean	Newcastle	Mean	Warwick	Mean
22.	q46 Making appropriate choices to facilitate your career	3.47	q32 Integrating scientific principles into clinical practice	3.42	q10 Carrying out basic respiratory function tests	3.51	q45 Taking action if colleagues' health and performance puts patients at risk	3.44
23.	q32 Integrating scientific principles into clinical practice	3.47	q19 Recognising and managing the acutely ill patients	3.44	q27 Communicating with patients who have mental illness	3.53	q40 Completing a learning portfolio of evidence to document your progress	3.44
24.	q3 Performing a full mental-state examination	3.51	q8 Carrying out arterial blood sampling	3.45	q52 Asserting yourself and expressing your views clearly to colleagues	3.56	q30 Demonstrating, explaining to or teaching medical students and colleagues	3.46
25.	q27 Communicating with patients who have mental illness	3.51	q45 Taking action if colleagues' health and performance puts patients at risk	3.45	q8 Carrying out arterial blood sampling	3.56	q53 Handing over care of a patient (e.g. at the end of a shift)	3.47
26.	q11 Administering oxygen therapy	3.52	q42 Using knowledge of how errors can happen in practice and applying the principles of managing risks	3.47	q12 Administering a nebuliser correctly	3.57	q6 Carrying out simple practical procedures (e.g. taking blood, IV access, administering oxygen)	3.51
27.	q30 Demonstrating, explaining to or teaching medical students and colleagues	3.55	q27 Communicating with patients who have mental illness	3.49	q42 Using knowledge of how errors can happen in practice and applying the principles of managing risks	3.57	q27 Communicating with patients who have mental illness	3.51
28.	q42 Using knowledge of how errors can happen in practice and applying the principles of managing risks	3.56	q26 Applying knowledge of patient lifestyle, background or religion that may influence diagnosis and management of the patient	3.52	q14b Forming plans to investigate and manage a patient's problems	3.57	q32 Integrating scientific principles into clinical practice	3.52
29.	q26 Applying knowledge of patient lifestyle, background or religion that may influence diagnosis and management of the patient	3.56	q14b Forming plans to investigate and manage a patient's problems	3.54	q50 Demonstrating awareness of the policies and procedures to be followed in	3.57	q51 Demonstrating effective leadership skills	3.58
30.	q14b Forming plans to investigate and manage a patient's problems	3.58	q46 Making appropriate choices to facilitate your career	3.55	q26 Applying knowledge of patient lifestyle, background or religion that may influence diagnosis and management of the patient	3.58	q50 Demonstrating awareness of the policies and procedures to be followed in	3.58
31.	q50 Demonstrating awareness of the policies and procedures to be followed in	3.59	q14c Involving patients in the process of assessing, forming and managing their problems	3.58	q51 Demonstrating effective leadership skills	3.61	q26 Applying knowledge of patient lifestyle, background or religion that may influence diagnosis and management of the patient	3.59
32.	q52 Asserting yourself and expressing your views clearly to colleagues	3.62	q50 Demonstrating awareness of the policies and procedures to be followed in	3.62	q20 Applying the principles of holistic care	3.63	q5 Interpreting the results of commonly used investigations	3.63
33.	q37 Prioritising tasks effectively	3.64	q14a Assessing a patient's problems	3.63	q5 Interpreting the results of commonly used investigations	3.64	q14b Forming plans to investigate and manage a patient's problems	3.64
34.	q40 Completing a learning portfolio of evidence to document your progress	3.65	q20 Applying the principles of holistic care	3.66	q36 Managing your own time effectively	3.67	q52 Asserting yourself and expressing your views clearly to colleagues	3.65
35.	q20 Applying the principles of holistic care	3.65	q52 Asserting yourself and expressing your views clearly to colleagues	3.69	q38 Applying the principles of promoting health and preventing disease	3.68	q42 Using knowledge of how errors can happen in practice and applying the principles of managing risks	3.65
36.	q51 Demonstrating effective leadership skills	3.66	q40 Completing a learning portfolio of evidence to document your progress	3.75	q40 Completing a learning portfolio of evidence to document your progress	3.70	q14a Assessing a patient's problems	3.68
37.	q14a Assessing a patient's problems	3.70	q37 Prioritising tasks effectively	3.82	q17 Writing out death certificate, either real or mock	3.71	q20 Applying the principles of holistic care	3.69
38.	q5 Interpreting the results of commonly used investigations	3.70	q51 Demonstrating effective leadership skills	3.83	q30 Demonstrating, explaining to or teaching medical students and colleagues	3.72	q3 Performing a full mental-state examination	3.70
39.	q38 Applying the principles of promoting health and preventing disease	3.76	q38 Applying the principles of promoting health and preventing disease	3.87	q14a Assessing a patient's problems	3.74	q38 Applying the principles of promoting health and preventing disease	3.80
40.	q14c Involving patients in the process of assessing, forming and managing their problems	3.77	q5 Interpreting the results of commonly used investigations	3.88	q11 Administering oxygen therapy	3.74	q37 Prioritising tasks effectively	3.82
41.	q36 Managing your own time effectively	3.84	q39 Applying knowledge of how social and psychological factors impinge on patients' health and care	3.95	q41 Identifying appropriate situations in which to seek help from a senior colleague	3.75	q36 Managing your own time effectively	3.88
42.	q6 Carrying out simple practical procedures (e.g. taking blood, IV access, administering oxygen)	3.84	q41 Identifying appropriate situations in which to seek help from a senior colleague	3.95	q14c Involving patients in the process of assessing, forming and managing their problems	3.79	q14c Involving patients in the process of assessing, forming and managing their problems	3.93

Rank	Overall	Mean	Glasgow	Mean	Newcastle	Mean	Warwick	Mean
43.	q41 Identifying appropriate situations in which to seek help from a senior colleague	3.88	q6 Carrying out simple practical procedures (e.g. taking blood, IV access, administering oxygen)	3.98	q35 Identifying your own learning needs	3.90	q35 Identifying your own learning needs	3.96
44.	q39 Applying knowledge of how social and psychological factors impinge on patients' health and care	3.97	q29 Employing a patient centred approach	4.02	q6 Carrying out simple practical procedures (e.g. taking blood, IV access, administering oxygen)	3.95	q39 Applying knowledge of how social and psychological factors impinge on patients' health and care	3.98
45.	q35 Identifying your own learning needs	4.02	q36 Managing your own time effectively	4.08	q39 Applying knowledge of how social and psychological factors impinge on patients' health and care	3.98	q44 Managing your health in order to protect	4.02
46.	q22 Employing a patient centred approach	4.07	q21 Communicating clearly, sensitively and effectively with patients and their relatives	4.13	q22 Employing a patient centred approach	4.03	q29 Employing a patient centred approach	4.05
47.	q44 Managing your health in order to protect	4.09	q22 Employing a patient centred approach	4.13	q2 Performing a full physical examination	4.04	q41 Identifying appropriate situations in which to seek help from a senior colleague	4.06
48.	q2 Performing a full physical examination	4.12	q2 Performing a full physical examination	4.15	q44 Managing your health in order to protect	4.05	q22 Employing a patient centred approach	4.07
49.	q29 Employing a patient centred approach	4.12	q44 Managing your health in order to protect	4.22	q21 Communicating clearly, sensitively and effectively with patients and their relatives	4.14	q21 Communicating clearly, sensitively and effectively with patients and their relatives	4.11
50.	q21 Communicating clearly, sensitively and effectively with patients and their relatives	4.13	q35 Identifying your own learning needs	4.29	q29 Employing a patient centred approach	4.22	q2 Performing a full physical examination	4.23
51.	q1 History taking	4.30	q1 History taking	4.33	q1 History taking	4.24	q43 Being honest with patients, colleagues and supervisors	4.24
52.	q47 Working as part of a team with other healthcare professions	4.32	q43 Being honest with patients, colleagues and supervisors	4.41	q47 Working as part of a team with other healthcare professions	4.28	q47 Working as part of a team with other healthcare professions	4.28
53.	q43 Being honest with patients, colleagues and supervisors	4.34	q47 Working as part of a team with other healthcare professions	4.42	q43 Being honest with patients, colleagues and supervisors	4.34	q48 Working with colleagues with different lifestyles, backgrounds or religions	4.34
54.	q49 Respecting the roles and expertise of other health and social care professionals	4.41	q49 Respecting the roles and expertise of other health and social care professionals	4.48	q48 Working with colleagues with different lifestyles, backgrounds or religions	4.37	q49 Respecting the roles and expertise of other health and social care professionals	4.35
55.	q48 Working with colleagues with different lifestyles, backgrounds or religions	4.41	q48 Working with colleagues with different lifestyles, backgrounds or religions	4.54	q49 Respecting the roles and expertise of other health and social care professionals	4.39	q1 History taking	4.36